NH School Administrative Unit 106 | Timberlane Regional School District
30 Greenough Road, Plaistow, NH 03865 Voice: (603) 382-6119 Fax: (603) 382-3334
Timberlane.net @TimberlaneRegional @TimberlaneRSD @TimberlaneRSD

Thursday, September 21, 2023
AGENDA

Regular Business Meeting
SAU 106 Boardroom

Justin Krieger, Interim Superintendent
Katie Knutsen, Chair
Kristin Savage, Vice Chair

1. **7:00 PM Call to Order – Chair**
2. **Roll Call – Clerk**
3. **Pledge of Allegiance**
4. **Approval of Minutes**
5. **Student, Staff & Family Share**
6. **Delegates and Individuals**
7. **Student Representative**
8. **Current Business**
    a. **7:05 PM Curriculum/Competency Revisions - ACTION**
        - **First Read – K-12 Science Competencies Revisions**
        - **First Read – Grades 6 & 7 Social Studies Curriculum Revisions**
        - **First Read – High School Math Curriculum Revisions**
    b. **7:25 PM Policies - ACTION**
    c. **7:35 PM Facilities Update & Irrigation RFP– ACTION/INFORMATIONAL**
9. **7:50 PM Administrator's Report**
10. **7:55 PM Vacancy Report**
11. **8:00 PM Committee Reports/Reports of the School Board**
12. **8:05 PM Other Business**
13. **Nonpublic Session**

DATE	TIME	LOCATION	TYPE OF MEETING
October 5	7:00 PM	SAU Boardroom	Regular Business
October 19	7:00 PM	SAU Boardroom	Regular Business
November 2	7:00 PM	SAU Boardroom	Regular Business
November 16	7:00 PM	SAU Boardroom	Regular Business

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1-3. Open Meeting
4. Approval of Minutes (2 sets: September 7th regular and nonpublic meeting minutes)
5. Student, Staff, & Family Share (Mrs. Patricia Macomber to present)
6. Delegates and Individuals
7. Student Representative
8. Current Business

a. Curriculum/Competency Revisions

i. K-12 Science Competencies Revisions

Motion to act on the first read of Grade 6 Energy, Grade 6 Forces & Interactions, Grade 6 Matter and Its Interactions, Grade 6 Waves and Electromagnetic Radiation, Grade 7 Body Systems, Grade 7 Change Over Time, Grade 7 Characteristics and Needs of Life, Grade 7 Discovering Cells, Grade 7 Ecology, Grade 7 Heredity and Genetics, Grade 8 Weather and Climate, Grade 8 Space Systems, Grade 8 Earth's Systems, and Grade 8 Human Impacts.

ii. Grades 6 & 7 Social Studies Curriculum Revisions

Motion to act on the first read of Grade 6 Intro to Social Studies Skills, Grade 6 Prehistory, Grade 7 Renaissance, Reformation, and the Push for Exploration, Grade 6 India, Grade 6 Mesoamerica (Eliminate), and Grade 6 Greece (Eliminate).

iii. High School Math Curriculum Revisions

Motion to act on the first read of Geometry units:

- Basics of Geometry, Triangles, Similarity and Transformations, Polygons, Surface Area and Volume, and Circles,

Motion to act on the first read of Probability, Statistics, & Trigonometry units:

- Trigonometry, Statistics, Probability, Matrices, Sequences and Series, and Logic

b. Policies

i. Motion to act on the first read of Policies FEH, GDR, BEDG, IHBA, and IC/ICA.
ii. Motion to act on the second read/adoption of Policies IIB, IKFC, IHBG, and JICD.

c. Facilities Update & Irrigation RFP

i. Mr. Ingoldsby to present a Facilities Update.
ii. Motion to act on the additional funds requested to move forward with athletic fields irrigation upgrade.

9. Administrator's Report

Mr. Krieger and Mrs. Allaire to present.

10. Vacancy Report
11. Committee Reports/Reports of the School Board
12. Other Business – Board members to provide agenda items for future meeting consideration.
13. Nonpublic Session – If needed.

Upcoming Agenda Items

Description	Month
SAU Organizational Chart	July/August
Audit Update	September/October
ESSER – Return to School Plan	October
Second Read Curriculum/Competency Revisions	October
School Action Plans	September/October
Facilities Update	October
NHSBA Delegate Assembly	October
Draft Warrants	October
Annual Meeting and Election Calendar	October
Athletics Annual Report	October
Assessment Calendar	October
Proposed Default Budget	November
Presentation of School Goals	November

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EXECUTIVE SUMMARY September 21, 2023

K-12 Science Competency Revisions

Subtopic

This executive summary describes the proposed changes to our K-12 science competencies. Numerous TRSD teachers and administrators spent time through the spring and summer working to ensure a consistent and aligned competency progression in all grades. These new proposed competencies align with the pre-existing curriculum, as they embody the intent of the pre-existing competencies, and therefore do not change the heart of the curriculum. Additionally, these new competencies are the adopted NH state model competencies, based on the Next Generation Science Standards (NGSS), which are the national standards.

For background and context, TRSD originally wrote our curriculum based on NGSS. This was prior to NH officially adopting these standards, and therefore NH had yet to write model competencies in science. Although the original TRSD science competencies were written aligned K-12, their language varied from level to level, and there was not a consistent model of how exactly they were written. Now that NH has officially adopted NGSS, written model competencies, and our teachers have been teaching and assessing the science curriculum for a number of years, it has become evident that a change was needed to ensure consistency.

These new competencies span all grade levels and the three major science domains (Life Science, Physical Science, and Earth/Space Science), and are focused on having students demonstrate their ability to actively “do” science at their appropriate grade level. The following two documents list both the competencies and where in the curriculum units each of those competencies can be found. One can see the spiraling nature of the competencies as well as how some competencies are more appropriately linked with certain content.

Respectfully submitted,

Mark Pedersen, Director of Secondary Education
Lucy Canotas, Director of Elementary Education

Science Competency Descriptions

Patterns
Students will demonstrate the ability to observe and describe patterns in natural and human designed phenomena and use those patterns to support claims about the observed or predicted relationships among phenomena.

Cause & Effect
Students will demonstrate the ability to investigate, explain, and evaluate potential causal relationships by using evidence to support claims and predictions about the mechanisms that drive those relationships.

Scale, Proportion, & Quantity
Students will demonstrate the ability to describe and represent the significance of changes in observable and non-observable phenomena in terms of relative scale, proportion, and quantity.

Systems & System Models
Students will demonstrate the ability to investigate and analyze a natural or human designed system in terms of its boundaries, inputs, outputs, interactions, and behaviors and use this information to develop a system model that can be used to understand and empirically evaluate the accuracy of models in terms of representing the underlying system.

Energy & Matter in Systems
Students will demonstrate the ability to analyze evidence from a variety of sources (investigations, models) to predict, connect and/or evaluate the cycling of matter and flow of energy within and between systems in order to understand, describe, or predict possibilities and limitations of systems.

Structure & Function
Students will demonstrate the ability to use evidence to support claims about the relationship among structure and function of natural and human designed objects.

Stability & Change in Systems
Students will demonstrate the ability to investigate and analyze static and dynamic conditions of natural and human designed systems in order to explain and predict changes over time.

Nature of Science
Student will demonstrate the ability to work collaboratively and individually to generate testable questions or define problems, plan and conduct investigations using a variety of research methods in a various settings, analyze and interpret data, reason with evidence to construct explanations in light of existing theory and previous research, and effectively communicate the research processes and conclusions.

Grade/Course	Science Competency	Patterns [1]	Cause & Effect [2]	Scale, Proportion, & Quantity [3]	Systems & System Models [4]	Energy & Matter in Systems [5]	Structure & Function [6]	Stability & Change in Systems [7]	Nature of Science [8]
Kindergarten	Physical Science	☐	☑	☐	☐	☐	☐	☐	☑
	Earth Science	☑	☑	☐	☐	☐	☐	☐	☑
	Life Science	☑	☑	☐	☐	☐	☐	☐	☑
Grade 1	Physical Science	☐	☑	☐	☐	☐	☐	☐	☑
	Earth Science	☑	☐	☐	☐	☐	☐	☐	☑
	Life Science	☑	☐	☐	☐	☐	☑	☐	☑
Grade 2	Physical Science	☑	☑	☐	☐	☐	☐	☐	☑
	Earth Science	☑	☐	☐	☐	☐	☐	☑	☑
	Life Science	☐	☑	☐	☐	☐	☑	☐	☑
Grade 3	Physical Science	☑	☑	☐	☐	☐	☐	☐	☑
	Earth Science	☑	☑	☐	☐	☐	☐	☐	☑
	Life Science	☐	☑	☐	☐	☐	☑	☐	☑
Grade 4	Physical Science	☐	☑	☐	☐	☑	☐	☐	☑
	Earth Science	☑	☑	☐	☐	☐	☐	☐	☑
	Life Science	☐	☑	☐	☑	☐	☐	☐	☑
Grade 5	Physical Science	☐	☑	☑	☐	☐	☐	☐	☑
	Earth Science	☐	☐	☑	☑	☐	☐	☐	☑
	Life Science	☐	☐	☐	☑	☑	☐	☐	☑
6th grade	Waves and Electromagnetic Radiation	☑	☐	☐	☐	☐	☑	☐	☑
	Matter and its interactions	☑	☑	☑	☐	☑	☑	☐	☑
	Forces & Interactions	☐	☑	☐	☑	☐	☐	☑	☐
	Energy	☐	☐	☑	☑	☑	☐	☐	☐
7th grade	Charcteristics of life	☐	☑	☐	☐	☑	☑	☐	☑
	Discovering Cells	☐	☐	☑	☑	☑	☑	☐	☑
	Body Systems	☐	☐	☐	☑	☑	☑	☐	☐
	Heredity and genetics	☐	☑	☐	☐	☑	☑	☐	☐
	Change over time	☑	☑	☐	☐	☐	☐	☐	☑
	Ecology	☑	☑	☐	☐	☑	☑	☑	☑
8th grade	Earth's systems	☑	☑	☑	☑	☑	☐	☑	☑
	Human Impacts	☑	☑	☐	☐	☐	☐	☑	☑
	Space Systems	☑	☐	☑	☑	☐	☐	☐	☑
	Weather and Climate	☐	☑	☐	☑	☑	☐	☑	☐
Physical Science	Chemical Reactions	☑	☐	☑	☐	☐	☑	☐	☑
	Structure & Properties of Matter	☑	☐	☐	☐	☐	☐	☐	☑
	Forces & Interactions	☐	☐	☐	☑	☑	☐	☐	☐
	Energy	☐	☐	☐	☐	☑	☐	☐	☑
Biology	Interdependent Relationships in Ecosystems	☐	☑	☑	☑	☑	☐	☐	☑
	Natural Selection & Evolution	☑	☐	☐	☐	☐	☐	☑	☑
	Matter & Energy	☐	☐	☐	☐	☑	☐	☑	☑
	Structure & Function	☐	☐	☐	☐	☐	☑	☑	☑
	Inheritance & Variation of Traits	☑	☑	☐	☐	☐	☑	☐	☑
Chemistry	Chemical Reactions	☑	☐	☑	☐	☐	☐	☐	☑
	Structure & Properties of Matter	☑	☐	☑	☐	☐	☐	☐	☑
	Energy	☐	☑	☑	☐	☑	☐	☐	☐
Physics	Forces & Interactions	☐	☐	☑	☑	☐	☐	☐	☑
	Energy	☐	☑	☑	☐	☑	☐	☐	☐
	Electricity & Magnetism	☐	☐	☑	☑	☐	☑	☐	☑
Environmental Science	Resources, Sustainability & Anthropogenic	☐	☑	☐	☐	☐	☐	☑	☑
	Interdependent relationships in ecosystems	☐	☑	☑	☑	☑	☐	☐	☐
Marine Biology	Interdependent relationships in ecosystems	☐	☑	☑	☑	☑	☐	☐	☐
	Matter & Energy	☐	☐	☐	☐	☑	☐	☑	☑
Zoology	Interdependent relationships in ecosystems	☐	☑	☑	☑	☑	☐	☐	☐
	Natural Selection & Evolution	☑	☐	☐	☐	☐	☐	☑	☑
Space Science	Space Systems	☐	☐	☑	☐	☑	☑	☑	☐
	Energy	☐	☑	☐	☑	☑	☐	☐	☑
Meteorology	Earth Systems	☐	☑	☑	☐	☐	☐	☑	☑
	Measuring and Modeling Weather and Climate	☐	☑	☑	☐	☐	☐	☑	☑
Botany	Structure and Function	☐	☐	☐	☑	☑	☐	☑	☑
	Independent Relationships in Ecosystems	☐	☑	☑	☑	☑	☐	☐	☐
Oceanography	Water Wind & Weather	☐	☐	☐	☐	☑	☑	☑	☑
	Geology	☐	☐	☐	☐	☑	☑	☑	☑
Human A&P CCP	Structure and Function: Transport	☐	☐	☐	☐	☐	☑	☑	☑
	Structure and Function: Movement	☐	☐	☐	☐	☐	☑	☑	☑

Grade/Course	Science Competency	Patterns [1]	Cause & Effect [2]	Scale, Proportion, & Quantity [3]	Systems & System Models [4]	Energy & Matter in Systems [5]	Structure & Function [6]	Stability & Change in Systems [7]	Nature of Science [8]
Human A&P ACC	Structure and Function: Movement	☐	☐	☐	☐	☐	☑	☑	☑
	Structure and Function: Transport	☐	☐	☐	☐	☐	☑	☑	☑
	Structure and Function: Communication	☐	☐	☐	☐	☐	☑	☑	☑
	Structure and Function: Reporduction and Excretion	☐	☐	☐	☐	☐	☑	☑	☑
Forensic Science	Unit 1 History and Crime Scenes	☑	☑	☐	☑	☐	☐	☑	☑
	Unit 2: Biotic	☑	☑	☐	☑	☐	☐	☑	☑
	Unit 3 Abiotic	☑	☑	☐	☑	☐	☐	☑	☑

[1] Students will demonstrate the ability to observe and describe patterns in natural and human designed phenomena and use those patterns to support claims about the observed or predicted relationships among phenomena.

[2] Students will demonstrate the ability to investigate, explain, and evaluate potential causal relationships by using evidence to support claims and predictions about the mechanisms that drive those relationships.

[3] Students will demonstrate the ability to describe and represent the significance of changes in observable and non-observable phenomena in terms of relative scale, proportion, and quantity.

[4] Students will demonstrate the ability to investigate and analyze a natural or human designed system in terms of its boundaries, inputs, outputs, interactions, and behaviors and use this information to develop a system model that can be used to understand and empirically evaluate the accuracy of models in terms of representing the underlying system.

[5] Students will demonstrate the ability to analyze evidence from a variety of sources (investigations, models) to predict, connect and/or evaluate the cycling of matter and flow of energy within and between systems in order to understand, describe, or predict possibilities and limitations of systems.

[6] Students will demonstrate the ability to use evidence to support claims about the relationship among structure and function of natural and human designed objects.

[7] Students will demonstrate the ability to investigate and analyze static and dynamic conditions of natural and human designed systems in order to explain and predict changes over time.

[8] Student will demonstrate the ability to work collaboratively and individually to generate testable questions or define problems, plan and conduct investigations using a variety of research methods in a various settings, analyze and interpret data, reason with evidence to construct explanations in light of existing theory and previous research, and effectively communicate the research processes and conclusions.

Grade 6: Energy

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Scale, Proportion and Quantity-** Students will apply reasoning and modeling to determine the proportional relationships in observable and non-observable phenomena in terms of relative scale and quantity.
- **Systems and System Models-** Students will investigate and analyze a natural or human designed system in order to develop and justify a model that accurately represents the system or aspects of the system (e.g., boundaries, inputs, outputs, interactions, and behaviors).
- **Energy and Matter in Systems-** Students will analyze evidence (e.g., investigations, models, theories, scenarios) to predict and track changes in the cycling of matter and flow of energy within and between systems in order to identify their possibilities and limitations.

Content Standards:

- MS-PS3-1. 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 an object.
- MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
- MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer
- MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.
- MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the

Transfer

Students will be able to independently use their learning to ***apply the concepts of energy and its various forms to real-life situations and everyday phenomena.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- proportional relationships (e.g. speed as the ratio of distance traveled to time taken) among different types of quantities provide information about the magnitude of properties and processes.
- models can be used to represent systems and their interactions – such as inputs, processes, and outputs – and energy and matter flows within systems.
- energy may take different forms (e.g. energy in fields, thermal energy, energy of motion).
- the transfer of energy can be tracked as energy flows through a designed or natural system.

ESSENTIAL QUESTIONS

- How can we use our knowledge of energy to improve the world around us?

Acquisition

object.	*Students will know…* - that motion energy is properly called kinetic energy; it is proportional to the mass of the moving object and grows with the square of its speed. - that a system of objects may also contain stored (potential) energy, depending on their relative positions. - that temperature is a measure of the average kinetic energy of particles of matter. - that the relationship between the temperature and the total energy of a system depends on the types, states, and amounts of matter present. - that when the motion energy of an object changes, there is inevitably some other change in energy at the same time. - that the amount of energy transfer needed to change the temperature of a matter sample by a given amount depends on the nature of the matter, the size of the sample, and the environment. - that energy is spontaneously transferred out of hotter regions or objects and into colder ones. - that when two objects interact, each one exerts a force on the other that can cause energy to be transferred to or from the object. <u>*vocabulary:*</u> kinetic energy, potential energy, temperature, thermal energy, heat, conductor, insulator, conduction, convection, radiation	*Students will be skilled at…* - constructing and interpreting graphical displays of data to describe the relationships. - developing models. - applying scientific principles to design, construct, and test a device. - planning investigations. - constructing, using, and presenting arguments to support a claim.

Content Area Literacy Standards	***21st Century Skills***

RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*. RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. WHST.6-8.1 Write arguments focused on *discipline-specific content*. WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. WHST.6-8.5 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. WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	• *access information* • *implement innovations* • *think creatively* • *make judgments and decisions* • *manage goals and time*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Science and Engineering Practices	***Mathematics Integration***
• S&EP 2. Developing and using Models • SE&P 4. Analyzing and interpreting data • S&EP 8. Obtaining, evaluating, and communicating information	• MP.2 Reason abstractly and quantitatively. • 6.RP.A.1 Understand the concept of ratio and use ratio language to describe a ratio relationship between two quantities. • 6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. • 7.RP.A.2 Recognize and represent proportional relationships between quantities. • 8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. • 8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form x2 = p and x3 = p, where p is a positive rational number. Evaluate square • roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational. • 8.F.A.3 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. • 6.SP.B.5 Summarize numerical data sets in relation to their context.
Technology Integration	***District Materials***
• 1.OA.1 Use	

Grade 6: Forces and Interactions

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Cause and Effect-** Students will investigate, explain, and evaluate potential causal relationships, using evidence to support claims and predictions about the mechanisms that drive those relationships.
- **Systems and System Models-** Students will investigate and analyze a natural or human designed system in order to develop and justify a model that accurately represents the system or aspects of the system (e.g., boundaries, inputs, outputs, interactions, and behaviors).
- **Stability and Change of Systems-** Students will analyze and evaluate the stability of natural and human designed systems in order to develop evidence-based explanations and predictions of changes over time.

Content Standards:

- MS-PS2-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.
- MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
- MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
- MS-PS2-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
- MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

Transfer

Students will be able to independently use their learning to ***identify causal relationships in the physical environment.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- cause and effect relationships may be used to predict phenomena in natural or designed systems.
- models can be used to represent systems and their interactions—such as inputs,processes and outputs—and energy and matter flows within systems.
- explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and forces at different scales.

ESSENTIAL QUESTIONS

- If Newton's Third Law didn't exist, would it change how we interact with the world?

Acquisition

	Students will know… - that for any pair of interacting objects, the force exerted by the first object on the second object is equal in strength to the force that the second object exerts on the first, but in the opposite direction. - that the motion of an object is determined by the sum of the forces acting on it; if the total force on the object is not zero, its motion will change. - that the greater the mass of the object, the greater the force needed to achieve the same change in motion. - that for any given object, a larger force causes a larger change in motion. - that electric and magnetic (electromagnetic) forces can be attractive or repulsive, and their sizes depend on the magnitudes of the charges, currents, or magnetic strengths involved and on the distances between the interacting objects. that gravitational forces are always attractive. - that there is a gravitational force between any two masses, but it is very small except when one or both of the objects have large mass—e.g., Earth and the sun. - forces that act at a distance (electric, magnetic, and gravitational) can be explained by fields that extend through space and can be mapped by their effect on a test object (a charged object, or a ball, respectively*).* <u>*vocabulary:*</u> force, mass, gravity, electromagnetic, inertia, field, net force	*Students will be skilled at…* - applying *Newton's Third Law.* - planning and conducting investigations. - asking questions about data. - using evidence to support a claim. - evaluating experimental designs. - constructing and presenting an argument.

	•	
Content Area Literacy Standards		***21st Century Skills***
• RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. • RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. • RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*. • RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. • RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. • RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. • WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. • WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. • WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.		• *think creatively* • *be self-directed learners* • *use and manage information* • *manage goals and time*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***

	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Science and Engineering Practices	***Mathematics Integration***
S&EP 1. Asking questions and defining problems S&EP 3 Planning and carrying out investigations S&EP 6 Constructing explanations and designing solutions S&EP 8 Obtaining, evaluating and communicating information	• MP.2 Reason abstractly and quantitatively. • 6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. • 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. • 7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form, 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. • 7.EE.B.4 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.
Technology Integration	***District Materials***
• 1.OA.1 Use	

Grade 6: Matter and Its Interactions

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Nature of Science-** Students will work collaboratively and individually to generate testable questions or define problems in terms of given constraints and criteria; plan and conduct investigations or apply engineering design practices to analyze and interpret data, and construct and communicate evidence-based explanations or possible optimal solutions.
- **Patterns-** Students will observe, predict, and analyze patterns in order to support evidence-based claims about relationships (e.g., cause and effect, structure and function, macroscopic and microscopic).
- **Cause and Effect-** Students will investigate, explain, and evaluate potential causal relationships, using evidence to support claims and predictions about the mechanisms that drive those relationships.
- **Structure and Function-** Students will analyze the relationship among structure and function of natural or human designed objects, using evidence to redesign or support claims about survival and/or improved performance

Content Standards:

- MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.
- MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
- MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
- MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
- MS-PS1-5. Develop and use a model to describe how the total number of atoms does not change in a

Transfer

Students will be able to independently use their learning to ***investigate causal relationships in order to explain change.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- cause and effect relationships may be used to predict phenomena in natural or designed systems.
- time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.
- structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.
- engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
- macroscopic patterns are related to the nature of microscopic and atomic-level structure.
- matter is conserved because atoms are conserved in physical and chemical processes.
- that the transfer of energy can be tracked as energy flows through a designed or natural system.

ESSENTIAL QUESTIONS

- Which state of matter is more important for survival?
- Which reactions are the most important in everyday life?

chemical reaction and thus mass is conserved.

- MS-PS1-6. Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.

Acquisition

Students will know…

- that substances are made from different types of atoms, which combine with one another in various ways.
- that atoms form molecules that range in size from two to thousands of atoms.
- that each pure substance has characteristic physical and chemical properties that can be used to identify it.
- that gases and liquids are made of molecules or inert atoms that are moving about relative to each other.
- that in a liquid, the molecules are constantly in contact with others; in a gas, they are widely spaced except when they happen to collide; that in a solid, atoms are closely spaced and may vibrate in position but do not change relative locations.
- that solids may be formed from molecules, or they may be extended structures with repeating subunits (e.g., crystals).
- that the changes of state that occur with variations in temperature or pressure can be described and predicted using these models of matter.
- that substances react chemically in characteristic ways.
- that in a chemical process, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants.
- that the term “heat” as used in everyday language refers both to thermal energy (the motion of atoms or molecules within a substance) and the transfer of that thermal

Students will be skilled at…

- analyzing and interpreting data.
- gathering and making sense of information.
- developing and using models.
- designing a project to construct, test, and modify a device.

	energy from one object to another. - that in science, heat is used only for this second meaning; it refers to the energy transferred due to the temperature difference between two objects. - that the temperature of a system is proportional to the average internal kinetic energy and potential energy. - that temperature is not a direct measure of a system's total thermal energy. - that each pure substance has characteristic physical and chemical properties that can be used to identify it. - that substances react chemically in characteristic ways. - that in a chemical process, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants. - that the total number of each type of atom is conserved, and thus the mass does not change. - that some chemical reactions release energy, others store energy. *vocabulary:* atoms, compound, element, molecule, state of matter. phase change, solid, liquid, gas, thermal energy, temperature, heat, potential energy, kinetic energy, exothermic, endothermic, products, reactants, chemical change, physical change, physical property, chemical property, electron, proton, neutron, nucleus	

Content Area Literacy Standards	***21st Century Skills***
RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*. RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. WHST.6-8.8 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. WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	• *use systems thinking* • *think creatively* • *work creative with others* • *implement innovations* • *be self-directed learners*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Science and Engineering Practices	***Mathematics Integration***
S&EP 2. Developing and using models S&EP 3 Planing and carrying out investigations S&EP 7 Engaging in argument from evidence	• MP.2 Reason abstractly and quantitatively. • MP.4 Model with mathematics. • 6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems. • 6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. • 8.EE.A.3 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.
Technology Integration	***District Materials***
• 1.OA.1 Use	

Grade 6: Waves and Electromagnetic Radiation

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Nature of Science-** Students will work collaboratively and individually to generate testable questions or define problems in terms of given constraints and criteria; plan and conduct investigations or apply engineering design practices to analyze and interpret data, and construct and communicate evidence-based explanations or possible optimal solutions.
- **Patterns-** Students will observe, predict, and analyze patterns in order to support evidence-based claims about relationships (e.g., cause and effect, structure and function, macroscopic and microscopic).
- **Structure and Function-** Students will analyze the relationship among structure and function of natural or human designed objects, using evidence to redesign or

Transfer

Students will be able to independently use their learning to ***interpret and respond to sensory information produced by sound and light waves.***

Meaning

support claims about survival and/or improved performance.

Content Standards:

- MS-PS4-1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.
- MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials
- MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

ENDURING UNDERSTANDINGS

Students will understand that…

- graphs and charts can be used to identify patterns in data.
- structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.
- structures can be designed to serve particular functions.

ESSENTIAL QUESTIONS

- Which has contributed more to today's world: light energy or sound energy?

Acquisition

Students will know…

- that a sound wave needs a medium through which it is transmitted.
- that when light shines on an object, it is reflected, absorbed, or transmitted through the object, depending on the object's material and the frequency (color) of the light.
- that the path that light travels can be traced as straight lines, except at surfaces between different transparent materials (e.g., air and water, air and glass) where the light path bends.
- that because light can travel through space, it cannot be a matter wave, like sound or water waves.
- that digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information.

vocabulary: compression, rarefaction, crest, trough, wavelength, amplitude, frequency, refraction, reflection, digital, analog, opaque, transparent, translucent

Students will be skilled at…

- using mathematical representations.
- developing and using models.
- integrating qualitative scientific and technical information to support claims.

Content Area Literacy Standards	***21st Century Skills***
RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*. RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. WHST.6-8.1 Write arguments focused on *discipline-specific content*. WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. WHST.6-8.8 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. WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	• *reason effectively* • *adapt to change* • *access and evaluate information* • *use systems thinking*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction	
Science and Engineering Practices	***Mathematics Integration***
• S&EP 1 Asking questions and defining problems • S&EP 4 Analyzing and interpreting data • S&EP 7 Engaging in argument from evidence • S&EP 8 Obtaining, evaluating and communicating information	• MP.2 Reason abstractly and quantitatively. • MP.4 Model with mathematics. • 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. • 6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems. • 7.RP.A.2 Recognize and represent proportional relationships between quantities. • 8.F.A.3 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.
Technology Integration	***District Materials***
• 1.OA.1 Use	

Grade 7: Body Systems

Stage 1 Desired Results

Science Competencies:

- **Structure and Function-** Students will analyze the relationship among structure and function of natural or human designed objects, using evidence to redesign or support claims about survival and/or improved performance.
- **Systems and System Models-** Students will investigate and analyze a natural or human designed system in order to develop and justify a model that accurately represents the system or aspects of the system (e.g., boundaries, inputs, outputs, interactions, and behaviors).
- **Energy and Matter in Systems-** Students will analyze evidence (e.g., investigations, models, theories, scenarios) to predict and track changes in the cycling of matter and flow of energy within and between systems in order to identify their possibilities and limitations.

Content Standards:

- **MS-LS1-3** Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- **MS-LS1-7** Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support
- **MS-LS1-8** Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

Literacy Competencies:

- Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline specific materials.
- Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.
- Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.

Transfer

Students will be able to independently apply their understanding of body systems to a variety of organisms.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- a multicellular organism is a complex unit made up of interacting subsystems.
- body systems work together to help organisms maintain homeostasis.

ESSENTIAL QUESTIONS

- Is any one living thing more important than another?
- Is any one body system more important than another?

Acquisition

Students will know that…

- systems may interact with other systems; they may have sub-systems and be a part of larger complex systems.
- complex structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.
- all living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of many different numbers and types of cells (multicellular).
- cells form tissues and tissues form organs specialized for particular body functions.
- there is a particular structure and function of the

Students will be skilled at…

- describing the structure and interactions of systems that may exist independently, or be composed of subsystems, or be part of a larger complex system.
- determining the limitations of a model when it represents only certain aspects of the system under study.
- modeling systems and their interactions including inputs, processes, and outputs.
- modeling complex structures and systems.
- analyzing complex natural structures/systems to determine how they function.
- demonstrating how the transfer of energy drives the motion and/or cycling of matter with a natural system.

	circulatory, excretory, digestive, respiratory, muscular, and nervous systems. ● cellular respiration in animals involves chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials. ● within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. ● each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories.	● predicting possible changes within the system by tracking the transfer of energy flow through a natural system.

Grade 7: Change Over Time

Stage 1 Desired Results

Science Competencies:

- **Patterns-** Students will observe, predict, and analyze patterns in order to support evidence based claims about relationships (e.g., cause and effect, structure and function, macroscopic and microscopic).
- **Nature of Science-** Students will work collaboratively and individually to generate testable questions or define problems in terms of given constraints and criteria; plan and conduct investigations or apply engineering design practices to analyze and interpret data, and construct and communicate evidence-based explanations or possible optimal solutions.

Content Standards:

- **MS-LS4-1** Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.
- **MS-LS4-2** Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
- **MS-LS4-3** Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.
- **MS-LS4-4** Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.
- **MS-LS4-6** Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Literacy Competencies:

- Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning

Transfer

Students will be able to independently analyze and interpret evolutionary relationships.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- there are multiple pieces of evidence that support the theory of evolution.
- populations change due to natural selection; speciation can occur over a long period of time.
- there are patterns in common ancestry.

ESSENTIAL QUESTIONS

- Why do species evolve?
- How do human traits show connection to other life forms?

Acquisition

Students will know that…

- the collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found or through radioactive dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth.
- anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent.
- comparison of the embryological development of different species also reveals similarities that show

Students will be skilled at…

- analyzing and interpreting data for past patterns to predict future patterns.
- using theories to objectively explore and describe the natural world.
- investigating changes over time and revising or reinterpreting knowledge based on new evidence.
- drawing conclusions and developing scientific explanations.

of discipline specific materials. ● Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. ● Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.	relationships not evident in the fully-formed anatomy. ● natural selection leads to the predominance of certain traits in a population, and the suppression of others. ● adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common. Thus, the distribution of traits in a population changes.	

Grade 7: Characteristics and Needs of Life

Stage 1 Desired Results

Science Competencies:

- **Nature of Science-** Students will work collaboratively and individually to generate testable questions or define problems in terms of given constraints and criteria; plan and conduct investigations or apply engineering design practices to analyze and interpret data, and construct and communicate evidence-based explanations or possible optimal solutions.

Science Content Standards:

- **MS-LS1-4** Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.
- **MS-LS1-5** Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- **MS-LS1-6** Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

Literacy Competencies:

- Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline specific materials.
- Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.
- Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.

Transfer

Students will be able to independently determine if something is alive.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- living things are made of cells, reproduce, grow and develop, maintain homeostasis, respond to their environment, and use energy.
- living things have certain needs for survival including food, water, and shelter.

ESSENTIAL QUESTIONS

- How do you know if something is alive?
- What do living things need to survive?
- How do living things meet their needs?

Acquisition

Students will know that…

- certain conditions are needed for seed germination.
- local conditions affect the growth of the adult plant.
- plants use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use.
- the chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon based organic molecules and release oxygen.

Students will be skilled at…

- developing testable questions, making logical predictions, collecting and analyzing data, and using specific evidence to interpret and draw conclusions, communicate findings, and develop scientific explanations.
- applying the engineering design process to optimally improve or solve problems using evidence.
- using scientific hypotheses, theories and laws to objectively explore and describe the natural and engineered world, investigate changes over time and revise or reinterpret knowledge based on new evidence.

	● all living things are made up of cells, which is the smallest unit that can be said to be alive. ● plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. ● in sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring.	● analyzing structures to determine function.

Grade 7: Discovering Cells

Stage 1 Desired Results

Science Competencies:

- **Structure and Function-** Students will analyze the relationship among structure and function of natural or human designed objects, using evidence to redesign or support claims about survival and/or improved performance.
- **Systems and System Models-** Students will investigate and analyze a natural or human designed system in order to develop and justify a model that accurately represents the system or aspects of the system (e.g., boundaries, inputs, outputs, interactions, and behaviors).
- **Scale, Proportion, and Quantity-** Students will apply reasoning and modeling to determine the proportional relationships in observable and non-observable phenomena in terms of relative scale and quantity.

Content Standards:

- **MS-LS1-1**. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
- **MS-LS1-2**. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
- **MS-LS1-6.** Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
- **MS-LS1-7.** 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.

Literacy Competencies:

- Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline specific materials.
- Students will demonstrate the ability to produce coherent and supported writing in order to communicate

Transfer

Students will be able to independently apply their understanding of cell structure and function to both unicellular and multicellular life.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- the smallest unit of life is a cell.
- organisms can be unicellular or multicellular.
- there are a variety of cell types.
- cells have organelles that carry out specific functions; these organelles work together to help cells meet their needs.

ESSENTIAL QUESTIONS

- Is any one living thing more important than another?
- How can something so small meet its basic needs for survival?

Acquisition

Students will know that…

- systems may interact with other systems; they may have sub-systems and be a part of larger complex systems.
- complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.
- all living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).
- within cells, special structures are responsible for

Students will be skilled at…

- describing the structure and interactions of systems that may exist independently, or be composed of subsystems, or be part of a larger complex system.
- determining the limitations of a model when it represents only certain aspects of the system under study.
- modeling systems and their interactions including inputs, processes, and outputs.
- modeling complex and microscopic structures and systems that are quite small.
- analyzing complex natural structures/systems to

effectively for a range of discipline-specific tasks, purposes, and audiences. ● Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.	particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. ● cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials. ● the chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon-based organic molecules and release oxygen. ● plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use. ● within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy.	determine how they function. ● using a variety of methods and tools to make measurements and observations.

Grade 7: Ecology

Stage 1 Desired Results

Science Competencies:

- **Patterns-** Students will observe, predict, and analyze patterns in order to support evidence based claims about relationships (e.g., cause and effect, structure and function, macroscopic and microscopic).
- **Cause and Effect-** Students will investigate, explain, and evaluate potential causal relationships, using evidence to support claims and predictions about the mechanisms that drive those relationships
- **Energy and Matter in Systems-** Students will analyze evidence (e.g., investigations, models, theories, scenarios) to predict and track changes in the cycling of matter and flow of energy within and between systems in order to identify their possibilities and limitations.
- **Stability and Change of Systems-** Students will analyze and evaluate the stability of natural and human designed systems in order to develop evidence-based explanations and predictions of changes over time.

Content Standards:

- MS-LS1-6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
- MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- MS-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- MS-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
- MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- MS-LS2-5. Evaluate competing design solutions for

Transfer

Students will be able to independently evaluate the health of an ecosystem.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- organisms have interdependent relationships in ecosystems.
- matter cycles through ecosystems.
- energy flows through ecosystems.
- ecosystems are dynamic.
- humans impact biodiversity and ecosystem stability.

ESSENTIAL QUESTIONS

- Is any one type of relationship between organisms more important than another?
- How do limiting factors influence the carrying capacity of an ecosystem?
- Why is it important for matter to cycle and energy to flow in ecosystems?
- Will the environment be able to rebound from natural disturbances and/or human impact?

Acquisition

Students will know that…

- predatory interactions may reduce the number of organisms or eliminate whole populations of organisms.
- mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival.
- although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments.
- biodiversity describes the variety of species found in

Students will be skilled at…

- creating models to predict trends and explain patterns in data that support claims.
- identifying patterns of interactions that provide information about natural systems.
- investigating cause and effect relationships in order to explain the mechanism driving change.
- predicting phenomena in natural systems.
- developing a model and from it drawing evidence that matter is conserved in physical and chemical processes.

maintaining biodiversity and ecosystem services.

Literacy Competencies:

- Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline specific materials.
- Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.
- Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.

Earth's terrestrial and oceanic ecosystems.

- the completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health.
- changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on.
- organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.
- in any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction.
- growth of organisms and population increases are limited by access to resources.
- food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem.
- transfer of matter into and out of the physical environment occurs at every level.
- decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments.
- the atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem.
- ecosystems are dynamic in nature; their characteristics can vary over time.
- disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.

- demonstrating how the transfer of energy drives the cycling of matter within a natural system.
- predicting possible changes within the system by tracking the transfer of energy flow through a natural system.
- using evidence to analyze and evaluate the stability and change of natural systems.
- examining changes over time to explain and predict the stability of a system.
- using evidence to predict how small changes in one part of a system may influence large changes in another part.
- using evidence to construct an argument of how stability might be disturbed either by sudden events or gradual changes that accumulate over time.
- demonstrating, using evidence, that a system in dynamic equilibrium is stable due to a balance of feedback mechanisms.

Grade 7: Heredity and Genetics

Stage 1 Desired Results

Science Competencies:

- **Cause and Effect-** Students will investigate, explain, and evaluate potential causal relationships, using evidence to support claims and predictions about the mechanisms that drive those relationships
- **Structure and Function-** Students will analyze the relationship among structure and function of natural or human designed objects, using evidence to redesign or support claims about survival and/or improved performance.

Content Standards:

- **MS-LS1-5** Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- **MS-LS3-1** Develop and use a model to describe 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.
- **MS-LS3-2** Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.
- **MS-LS4-5** Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms.

Literacy Competencies:

- Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline specific materials.
- Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.
- Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about

Transfer

Students will be able to independently use their learning to evaluate advances in genetics.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- cause and effect relationships may be used to predict phenomena in natural systems.
- phenomena that can be observed at one scale may not be observable at another scale.
- engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
- some cause and effect relationships in systems can only be described using probability.

ESSENTIAL QUESTIONS

- Which is more important, nature or nurture?
- Should there be limits to advances in genetics based on ethics?
- How does the creation of proteins impact the organism?

Acquisition

Students will know that…

- organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring.
- in sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other.
- genes are located in the chromosomes of cells, with

Students will be skilled at…

- describing cause and effect relationships using probability concepts.
- using Punnett Squares to predict the inheritance of traits.
- modeling complex and microscopic structures and systems.
- visualizing and modeling how function depends on the shapes, composition, and relationships among its parts.

content, language use, and discourse style.	each chromosome pair containing two variants of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual. Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits. ● variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited. ● in addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and some neutral to the organism. ● in *artificial* selection, humans have the capacity to influence certain characteristics of organisms by selective breeding. One can choose desired parental traits determined by genes, which are then passed onto offspring. ● DNA is too small to see and study without the use of special tools.	

Grade 8: Weather and Climate

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Cause and Effect-** Students will investigate, explain, and evaluate potential causal relationships, using evidence to support claims and predictions about the mechanisms that drive those relationships.
- **Systems and system Models-** Students will investigate and analyze a natural or human designed system in order to develop and justify a model that accurately represents the system or aspects of the system (e.g., boundaries, inputs, outputs, interactions, and behaviors).
- **Energy and Matter in Systems-** Students will analyze evidence (e.g., investigations, models, theories, scenarios) to predict and track changes in the cycling of matter and flow of energy within and between systems in order to identify their possibilities and limitations.
- **Stability and Change-** Students will analyze and evaluate the stability of natural and human designed systems in order to develop evidence-based explanations and predictions of changes over time.

Content Standards:

- MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
- MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
- MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
- MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Transfer

*Students will be able to independently use their learning to **understand climate factors and predict weather.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- cause and effect relationships may be used to predict phenomena in natural or designed systems.
- models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy, matter, and information flows within systems.
- stability might be disturbed either by sudden events or gradual changes that accumulate over time.

ESSENTIAL QUESTIONS

- How can we predict weather accurately when its complexity requires using probabilities?

Acquisition

	Students will know… - climate is influenced by latitude, elevation, proximity to large bodies of water, and geography - that variations in density due to variations in temperature and salinity drive a global pattern of interconnected ocean currents. - that local and global winds form as a result of variations in air pressure, temperature, and the Earth's rotation, leading to the movement of air masses on both small and large scales. - that air masses interact, leading to the formation of weather systems and the influence of factors such as temperature, humidity, and pressure gradients on atmospheric circulation patterns. - that weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. - that water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land. - that global movements of water and its changes in form are propelled by sunlight and gravity. - that the ocean exerts a major influence on weather and climate by absorbing energy from the sun, releasing it over time, and globally redistributing it through ocean currents. - rising global temperatures are contributing to the intensification of severe weather events, alterations in weather patterns, and shifts in long-term climate conditions. - that because these patterns are so complex,	*Students will be skilled at…* - developing and using models. - interpreting data to carry out investigations. - supporting scientific arguments using evidence. - asking questions to clarify evidence.

	weather can only be predicted probabilistically. *vocabulary:* climate, continental, maritime, polar, tropical, latitude, altitude, elevation, density, salinity, convection, conduction, radiation, fronts, occluded, stationary, local wind, global wind, current, infrared radiation, electromagnetic radiation, thermal energy transfer, temperature, albedo, meteorologist	

Content Area Literacy Standards	***21st Century Skills***
• RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. • RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. • RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. • RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*. • RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. • RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. • WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. • WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. • WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	• *interact effectively with others* • *solve problems* • *communicate clearly* • *make judgments and decisions* • *use systems thinking*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):

	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Science and Engineering Practices	***Mathematics Integration***
S&EP 1. Asking questions and defining problems S&EP 2. Developing and using models S&EP 4. Analyzing and interpreting data S&EP 6. Constructing explanations (for science) and designing solutions (for engineering) S&EP 8. Obtaining, evaluating, and communicating information	• MP.2 Reason abstractly and quantitatively. • 6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. • 6. EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. • 7. EE.B.4 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.
Technology Integration	***District Materials***

• 1.OA.1 Use	

Grade 8: Space Systems

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Nature of Science-** Students will work collaboratively and individually to generate testable questions or define problems in terms of given constraints and criteria; plan and conduct investigations or apply engineering design practices to analyze and interpret data, and construct and communicate evidence-based explanations or possible optimal solutions.
- **Patterns-** Students will observe, predict, and analyze patterns in order to support evidence-based claims about relationships (e.g., cause and effect, structure and function, macroscopic and microscopic).
- **Scale, Proportion and Quantity-** Students will apply reasoning and modeling to determine the proportional relationships in observable and non-observable phenomena in terms of relative scale and quantity.
- **Systems and System Models-** Students will investigate and analyze a natural or human designed system in order to develop and justify a model that accurately represents the system or aspects of the system (e.g., boundaries, inputs, outputs, interactions, and behaviors).

Content Standards:

- MS-ESS1-1 Develop and use a model of the Earth-sun-moon systems to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
- MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar system.

Transfer

Students will be able to independently use their learning to ***analyze celestial objects and motions in order to predict cyclical patterns and resulting phenomena.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- patterns can be used to identify cause and effect relationships.
- time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.
- models can be used to represent systems and their interactions.

ESSENTIAL QUESTIONS

- How does the motion of celestial objects influence phenomena on Earth?

Acquisition

	Students will know… - that patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models. - that Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe. - that the solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them. - that this model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year. - that the solar system appears to have formed from a disk of dust and gas, drawn together by gravity. - that tides occur as a result of the gravitational pull of the Moon and the Sun on Earth's oceans *vocabulary:* star, nebula, fusion, accretion, inertia, gravity, solar system, galaxies, celestial, satellite, planet, asteroid, meteoroid, comet, constellation, universe, equinox, solstice, axis, rotation, revolution, phases, eclipses, tides, orbit, ellipse	*Students will be skilled at…* - developing and using models. - analyzing and interpreting data. - supporting scientific arguments using evidence.

Content Area Literacy Standards	***21st Century Skills***

• RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. • RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. • RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. • RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*. • RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. • RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. • WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. • WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. • WHST.6-8.8 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. • WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	• *reason effectively* • *make judgments and decisions* • *solve problems* • *use systems thinking*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Science and Engineering Practices	***Mathematics Integration***
S&EP 2. Developing and using models S&EP 4. Analyzing and interpreting data S&EP 5. Using mathematics and computational thinking S&EP 6. Constructing explanations (for science) and designing solutions (for engineering)	• MP.2 Reason abstractly and quantitatively. • MP.4 Model with mathematics. • 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. • 7.RP.A.2 Recognize and represent proportional relationships between quantities. • 6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. • 7. EE.B.4 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.
Technology Integration	***District Materials***
• 1.OA.1 Use	

Grade 8: Earth's Systems

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Cause and Effect-** Students will investigate, explain, and evaluate potential causal relationships, using evidence to support claims and predictions about the mechanisms that drive those relationships.
- **Scale, Proportion and Quantity-** Students will apply reasoning and modeling to determine the proportional relationships in observable and non-observable phenomena in terms of relative scale and quantity.
- **Energy and Matter in Systems-** Students will analyze evidence (e.g., investigations, models, theories, scenarios) to predict and track changes in the cycling of matter and flow of energy within and between systems in order to identify their possibilities and limitations.
- **Stability and Change-** Students will analyze and evaluate the stability of natural and human designed systems in order to develop evidence-based explanations and predictions of changes over time.

Content Standards:

- MS-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.
- MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
- MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
- MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

Transfer

Students will independently apply their learning to ***predict, analyze, interpret, and model natural and designed systems***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- cause and effect relationships may be used to predict phenomena in natural or designed systems.
- within a natural or designed system, the transfer of energy drives the motion and/or cycling of matter.
- explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and processes at different scales.
- patterns in rates of change and other numerical relationships can provide information about natural systems.
- time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.

ESSENTIAL QUESTIONS

- How do the processes shaping Earth's surface, the distribution of natural resources, and the passage of time reveal the history of our planet?

Acquisition

	Students will know… - that all Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living organisms. - that global movements of water and its changes in form are propelled by sunlight and gravity. Movement in water throughout Earth's spheres contributes to the changing of Earth's surface through processes such as weathering and erosion. - that humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources. Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geologic processes. - that the geologic time scale interpreted from rock strata provides a way to organize Earth's history. - that analyses of rock strata and the fossil record provide only relative dates, not an absolute scale. - that tectonic processes continually generate new ocean seafloor at ridges and destroy old seafloor at trenches. - that the planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. - that maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided, and spread apart.	*Students will be skilled at…* - developing and using models. - planning and carrying out investigations by collecting and interpreting data. - supporting scientific arguments with evidence.

	vocabulary: plate tectonics, crust, core, mantle (asthenosphere, lithosphere), convection, density subduction, convergent, divergent, transform, fault minerals, rock, igneous, metamorphic, sedimentary, compaction, cementation, weathering (physical, chemical), erosion, deposition, crystallization, evaporation, condensation, precipitation, sublimation, transpiration, strata, uniformitarianism, superposition, cross cutting, intrusion, tilt, uplift	

Content Area Literacy Standards	***21st Century Skills***
• RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. • RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. • RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. • RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*. • RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. • RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. • WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task,	• *reason effectively* • *make judgments and decisions* • *solve problems* • *use systems thinking*

purpose, and audience. • WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. • WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Science and Engineering Practices	***Mathematics Integration***
S&EP 1. Asking questions and defining problems S&EP 2. Developing and using models S&EP 4. Analyzing and interpreting data S&EP 6. Constructing explanations (for science) and designing solutions (for engineering) S&EP 8. Obtaining, evaluating, and communicating information	• 6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. • 7. EE.B.4 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.
Technology Integration	***District Materials***
• 1.OA.1 Use	

Grade 8: Human Impacts

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Patterns-** Students will observe, predict, and analyze patterns in order to support evidence-based claims about relationships (e.g., cause and effect, structure and function, macroscopic and microscopic).
- **Cause and Effect:** Students will investigate, explain, and evaluate potential causal relationships, using evidence to support claims and predictions about the mechanisms that drive those relationships.

Content Standards:

- MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
- MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Transfer

Students will independently apply their learning to ***make informed decisions regarding the reciprocal relationship between human activities and the environment, recognizing the vulnerability of both humans and other living things to climate changes.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- graphs, charts, and images can be used to identify patterns in data.
- relationships can be classified as causal or correlational, and correlation does not necessarily imply causation.
- cause and effect relationships may be used to predict phenomena in natural or designed systems.

ESSENTIAL QUESTIONS

- In what ways can the reciprocal relationship between human activities and the environment be sustained as the human population grows?

Acquisition

	Students will know… - that mapping the history of natural hazards in a region, combined with an understanding of related geologic forces can help forecast the locations and likelihoods of future events. - that human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. - that typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise. - that human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing the level of climate change and reducing human vulnerability to whatever climate changes do occur depend on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior and applying that knowledge wisely in decisions and activities. <u>*vocabulary:*</u> environment, catastrophe, extinction, biosphere, per capita consumption, natural resources, technology, economic, consequences, fossil fuels, greenhouse gases, climate change, global warming	*Students will be skilled at…* - analyzing and interpreting data. - applying scientific principles of design. - constructing an argument supported by evidence. - asking questions to clarify evidence.

Content Area Literacy Standards	***21st Century Skills***
• RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. • RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. • RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*. • RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. • RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. • WHST.6-8.1 Write arguments focused on *discipline-specific content*. • WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. • WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. • WHST.6-8.7 Conduct short research projects to answer a question drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. • WHST.6-8.8 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. • WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	• *collaborate with others* • *manage goals and time* • *solve problems* • *communicate clearly* • *work creatively with others*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Science and Engineering Practices	***Mathematics Integration***
S&EP 1. Asking questions and defining problems S&EP 7. Engaging in argument from evidence S&EP 8. Obtaining, evaluating, and communicating information	• MP.2 Reason abstractly and quantitatively. • 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. • 7.RP.A.2 Recognize and represent proportional relationships between quantities. • 6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. • 7 .EE.B.4 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
Technology Integration	***District Materials***
• 1.OA.1 Use	

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EXECUTIVE SUMMARY

TRMS Social Studies Curriculum Revisions

Courses: 6th and 7th Grade

The TRMS Social Studies department is proposing curriculum revisions that take place in the 6th and 7th grades Social Studies curriculum. The majority of the proposed revisions are in the 6th grade Social Studies curriculum units, with a few minor revisions to the 7th grade Social Studies curriculum units.

In summary, the 6th grade changes are as follows: the addition of a unit of study on India, an elimination of units/relocation of some content on Greece and MesoAmerica, and the breaking up of one curriculum unit into two units: Introduction to Social Studies Skills and Prehistory. The remaining approved units will not be revised: Egypt, China, Mesopotamia.

The 6th grade Social Studies curriculum will still begin with Introduction to Social Studies Skills and Prehistory, but with the proposed change of breaking these topics into two units, students will have a more thorough experience delving into these skills and background knowledge elements prior to the other themed units. With India's civilization preceding Greece and MesoAmerica, the Social Studies teachers feel it necessary to cover this material and its themes as one of the areas of study in 6th grade. In collaboration amongst grade levels, Greece and MesoAmerican unit materials were analyzed for existing overlap between 6th and 7th grade. Some additions were made to current units in the 7th grade curriculum, where students are looking at these topics through a more governmental lens.

Thank you to the TRMS Social Studies Department, in particular the TRMS 6th and 7th Grade Social Studies teachers, for all of their thoughtful work and collaboration on these curriculum revisions.

Respectfully submitted,

Jennifer Puchlopek, Secondary Curriculum Coordinator

Grade 6: Intro to Social Studies Skills

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to analyze the reciprocal relationships among human and physical systems by evaluating geospatial data, historical evidence, economic activity, and political decisions.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- Geo.1.6-8. Construct maps to represent and explain the spatial patterns of cultural and environmental characteristics
- Geo.2.6-8. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions, and changes in their environmental characteristics.
- Geo.3.6-8. Use paper based and electronic mapping and graphing techniques to represent and analyze spatial patterns of different environmental and cultural characteristics.
- Geo.5.6-8. Analyze the combinations of cultural and environmental characteristics that make places both similar to and different from other places.
- Geo.6.6-8. Explain how the physical and human characteristics of places and regions are connected to human identities and cultures.
- Geo.12.6-8. Explain how global changes in population distribution patterns affect changes in land use in particular places.

Transfer

Students will be able to independently use their learning to ***organize and understand information on a map and timeline as well as become familiar with the elements of a civilization.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- Understanding a map and its features is essential for understanding the world
- Time is organized in a particular order
- Every civilization has certain elements that define it

ESSENTIAL QUESTIONS

- Why does time need to be organized?
- Is any civilization better than the other?
- Why are geography and maps important in our world?

Acquisition

Students will know…

- the important components of a map and how they work (key, compass rose, latitude/longitude, hemispheres);
- How a river works
- How time is organized (BC/AD);
- The 6 elements of a civilization and examples of each
    - G: Geography
    - R: Religion
    - A: Achievements
    - P: Politics
    - E: Economics
    - S: Social Structure

Students will be skilled at…

- Working with maps to explain spatial patterns;
- using geographic representations to explain relationships;
- using mapping and graphing techniques to analyze spatial patterns;
- explaining the relationship between environment and identity;

	<u>vocabulary:</u> timeline, archaeology, artifact, geography, location, relative location, absolute location, place, region, movement, human environment interaction, continent, ocean, physical feature, mountain, river, source, mouth, delta, peninsula, sea, desert, harbor, isthmus, plateau, canyon, plain, lake, county, island, valley, strait, map, key, compass rose, scale, hemispheres, quadrant, Equator, Prime Meridian, lines of latitude, lines of longitude	

Content Area Literacy Standards	***21st Century Skills***
● RH.6-8.1 Cite specific textual evidence to support analysis of primary and secondary sources. ● RH.6-8.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. ● RH.6-8.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. ● RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts. ● RH.6-8.9 Analyze the relationship between a primary and secondary source on the same topic. ● WHST.6-8.1 Write arguments focused on discipline-specific content. ● WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. ● WHST.6-8.5 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. ● WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. ● WHST.6-8.8 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. ● WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	● *communicate clearly* ● *collaborate with others* ● *manage goals and time* ● *be self-directed learners*

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Summary of Key Learning Events and Instruction		
Science Integration	***College, Career, and Civic Life Integration***	***Technology Integration***
District Materials	***Distance Learning/Field Trips***	***Technology Resources***

Grade 6: Prehistory

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to evaluate causal relationships in order to analyze change and continuity over time.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- Civ.14.6-8. Compare historical and contemporary means of changing societies, and promoting the common good.
- His.1.6-8. Analyze connections among events and developments in broader historical contexts.
- His.2.6-8. Classify series of historical events and developments as examples of change and/or continuity.
- His.10.6-8. Detect possible limitations in the historical record based on evidence collected from different kinds of historical sources.
- His.14.6-8. Explain multiple causes and effects of events and developments in the past.

Transfer

Students will be able to independently use their learning to ***analyze an aspect of life today and connect it to a time in history.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- Each place on Earth has a unique set of local conditions and connections to other places.
- Human-environment interactions are essential aspects of human life in all societies and they occur at local-to-global scales.

ESSENTIAL QUESTIONS

- Will humans stop evolving?

Acquisition

Students will know…

- that different types of historical evidence include primary sources, secondary sources, and artifacts;
- that humans have developed ways to adapt to their environment;
- that early humans made many important advancements in prehistoric times;
- that the Agricultural Revolution changed the way people lived;
- <u>of</u> the following key players, places, events, and/or ideas:
  - *Otzi the Iceman, Agricultural Revolution*

<u>*vocabulary*</u>: Prehistory, Paleolithic, nomad, technology, cave drawings, stone age, Neolithic, Agricultural (Farming Revolution), domestication, specialization

Students will be skilled at…

- comparing means of changing society over time;
- constructing maps to explain spatial patterns;
- comparing and contrasting cultural and environmental characteristics;
- explaining the relationship between environment and identity;
- explaining cause and effect relationships;
- analyzing connections in history;
- classifying events;

Content Area Literacy Standards

- RH.6-8.1 Cite specific textual evidence to support analysis of primary and secondary sources.

21st Century Skills

- *make judgments and decisions*

● RH.6-8.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. ● RH.6-8.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. ● RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts. ● RH.6-8.9 Analyze the relationship between a primary and secondary source on the same topic. ● WHST.6-8.1 Write arguments focused on discipline-specific content. ● WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. ● WHST.6-8.5 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. ● WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. ● WHST.6-8.8 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. ● WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	● *communicate clearly* ● *collaborate with others* ● *manage goals and time* ● *be self-directed learners*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	***Mathematics Integration***
● 1.OA.1 Use	● 1.OA.1 Use
Technology Integration	***District Materials***
● 1.OA.1 Use	

Grade 7: Renaissance, Reformation, and the Push for Exploration

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to analyze the roles of individuals, laws, institutions, and social mechanisms in order to justify the existence of social and political systems.***
- ***Students will demonstrate the ability to analyze causal relationships in an economic system by explaining the roles of buyers/sellers, innovation, and entrepreneurship in a market economy.***
- ***Students will demonstrate the ability to analyze the reciprocal relationships among human and physical systems by evaluating geospatial data, historical evidence, economic activity, and political decisions.***
- ***Students will demonstrate the ability to evaluate causal relationships in order to analyze change and continuity over time.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- Civ.6.6-8. Describe the roles of political, civil, and economic organizations in shaping people's lives.
- Civ.9.6-8. Compare deliberative processes used by a wide variety of groups in various settings.
- Civ.10.6-8. Explain the relevance of personal interests and perspectives, civic virtues, and democratic principles when people address issues and problems in government and civil society.
- Civ.14.6-8. Compare historical and contemporary means of changing societies, and promoting the common good.
- Geo.2.6-8. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions, and changes in their environmental characteristics.
- Geo.3.6-8. Use paper based and electronic mapping and graphing

Transfer

*Students will be able to independently use their learning to **make informed decisions based upon their understanding of the individual's impact in a society influenced by powerful forces.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- the ideals of a society are reflected in its artistic expression.
- no historical event or development occurs in a vacuum; each one has prior conditions and causes, and each one has consequences.
- each place on Earth has a unique set of local conditions and connections to other places.
- economic decision making involves setting goals, identifying the resources available to achieve those goals, and weighing the additional benefit of an action against the additional cost.

ESSENTIAL QUESTIONS

- *Does technology change world views?*
- *Does it matter what a society believes is important?*
- *How much power should one person have?*

Acquisition

Students will know…

- that the wealth and independence of the Italian city-states cleared the way for the Renaissance
- that there were Greek/Roman, secular, and humanistic ideals of the Renaissance as reflected in Italian Renaissance art
- that diplomacy and systems of banking began under the Medici and others
- that the Renaissance ideas were able to spread into Western Europe following the 100 Years' War along with the rise of Ferdinand and Isabella
- that there were concerns about Church practice voiced by Martin Luther and others.
- that there are differences in belief and practice between the Roman Catholic Church and the new Protestant denominations.
- that economic factors led to exploration, including for example, the closing of the Silk Road.
- that there was a rise in the practice of mercantilism by Western Europe's new powerful nations.

Students will be skilled at…

- describing the impact of organizations on people.
- comparing varied deliberative processes.
- explaining the relevance of personal interests and perspectives.
- comparing means of changing society over time.
- explaining the impact of economic decisions.
- explaining the roles of buyers and sellers.
- analyzing the role of innovation in an economy.
- using mapping and graphing techniques to analyze spatial patterns.
- explaining how innovation impacts cultural practices.
- explaining how environment influences trade.
- analyzing connections in history, and classifying

techniques to represent and analyze spatial patterns of different environmental and cultural characteristics.
- Geo.7.6-8. Explain how changes in transportation and communication technology influence the spatial connections among human settlements and affect the diffusion of ideas and cultural practices.
- Geo.10.6-8. Analyze the ways in which cultural and environmental characteristics vary among various regions of the world.
- Geo.11.6-8. Explain how the relationship between the environmental characteristics of places and production of goods influences the spatial patterns of world trade.
- Geo.12.6-8. Explain how global changes in population distribution patterns affect changes in land use in particular places.
- His.1.6-8. Analyze connections among events and developments in broader historical contexts.
- His.2.6-8. Classify series of historical events and developments as examples of change and/or continuity.
- His.3.6-8. Use questions generated about individuals and groups to analyze why they, and the developments they shaped, are seen as historically significant.
- His.4.6-8. Analyze multiple factors that influenced the perspectives of people during different historical eras.
- His.5.6-8. Explain how and why perspectives of people have changed over time.
- His.11.6-8. Use other historical sources to infer a plausible maker, date, place of origin, and intended audience for historical sources where this information is not easily identified.
- His.12.6-8. Use questions generated about multiple historical sources to identify further areas of inquiry and additional sources.
- His.14.6-8. Explain multiple causes and effects of events and developments in the past.
- His.15.6-8. Evaluate the relative influence of various causes of events and developments in the past.
- His.16.6-8. Organize applicable evidence into a coherent argument about the past.
- Eco.1.6-8. Explain how economic decisions affect the well-being of individuals, businesses, and society.
- Eco.3.6-8. Explain the roles of buyers and sellers in product, labor, and financial markets.
- Eco.7.6-8. Analyze the role of innovation and entrepreneurship in a market economy.

- that commerce in Western Europe began during this time.
- that the search for a water route to Asia led to the beginnings of exploration by Europeans.
- that important new technologies arose after the Middle Age including, for example, the printing press, the caravel, and the astrolabe.
- that Christianity, like all religions, is multi-faceted.
- that the Renaissance began in the Italian city-states and spread throughout Europe. It sparked an age of exploration and discovery.
- that European nations sought direct trade routes to Asia in order to bypass Turkish. traders. They set sail to the Americas and along western Africa to India. As a result, the West African gold and slave trade developed.
- that European nation-states competed for power based on wealth. Portugal, Spain, England, France, and the Netherlands explored North American and set up colonies to provide raw materials, markets, and trade goods.
- technological advances and economic gains go hand in hand.
- that Mesoamerica's geography had an impact on their history.
- that the Mesoamericans had a very advanced civilization.
- that indigenous people were greatly impacted by the arrival of the Europeans.

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vocabulary: renaissance, humanism, secular, diplomat, ambassador, vernacular, printing press, protest, denomination, mercantilism, colony, invest, joint-stock, cottage industry, import, export, commerce, Henry the Navigator, Vasco da Gama, Christopher Columbus, Ferdinand Magellan

events.
- explaining and analyzing influences on historical perspectives.
- using multiple historical sources.
- explaining and evaluating cause and effect relationships.
- organizing evidence into a coherent argument.

Content Area Literacy Standards	***21st Century Skills***
• RH.6-8.1 Cite specific textual evidence to support analysis of primary and secondary sources. • RH.6-8.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. • RH.6-8.3 Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered). • RH.6-8.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.	• *make judgements and decisions* • *communicate clearly* • *access and evaluate information* • *think creatively* • *collaborate with others*

• RH.6-8.5 Describe how a text presents information (e.g., sequentially, comparatively, causally). • RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts. • RH.6-8.8 Distinguish among fact, opinion, and reasoned judgment in a text. • WHST.6-8.1 Write arguments focused on *discipline-specific content*. • WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. • WHST.6-8.5 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. • WHST.6-8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. • WHST.6-8.8 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. • WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

G6: India

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

Students will demonstrate the ability to analyze the reciprocal relationships among human and physical systems by evaluating geospatial data, historical evidence, economic activity, and political decisions.

Students will demonstrate the ability to evaluate causal relationships in order to analyze change and continuity over time.

Students will demonstrate the ability to analyze the roles of individuals, laws, institutions, and social mechanisms in order to justify the existence of social and political systems.

Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.

Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.

Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.

Content Standards:

Civ.6.6-8. Describe the roles of political, civil, and economic organizations in shaping people's lives.
Civ.12.6-8. Assess specific rules and laws (both actual and proposed) as means of addressing public problems.
Civ.14.6-8. Compare historical and contemporary means of changing societies, and promoting the common good.
Geo.5.6-8. Analyze the combinations of cultural and environmental characteristics that make places both similar to and different from other places.
Geo.6.6-8. Explain how the physical and human characteristics of places and regions are connected to human identities and cultures.
Geo.10.6-8. Analyze the ways in which cultural and environmental characteristics vary among various regions of the world.

Transfer

Students will be able to independently use their learning to analyze how a society's rules, systems, and culture are shaped by various social aspects, geography and natural resources available to its people over time.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- Earth's human systems and physical systems are in constant interaction and have reciprocal influences flowing among them.
- All individuals are impacted by social change, which refers to the transformation of culture, social institutions, and social structure over time.
- Individual and group identity is socially constructed through relationships with significant individuals, groups, and society as a whole.

ESSENTIAL QUESTIONS

- Why are societies divided into different social classes?
- Under what circumstances do religions develop?

Acquisition

Students will know…

- India's caste system has a specific structure, multiple causes, and a significant impact on the society.
- there are differing religious beliefs that are found in India that spread across the society

Students will be skilled at…

- the impact of organizations on people
- comparing means of changing society over time
- comparing and contrasting cultural and environmental characteristics

His.1.6-8. Analyze connections among events and developments in broader historical contexts. His.3.6-8. Use questions generated about individuals and groups to analyze why they, and the developments they shaped, are seen as historically significant. His.14.6-8. Explain multiple causes and effects of events and developments in the past. Geo.2.6-8. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions, and changes in their environmental characteristics. Geo.4.6-8. Explain how cultural patterns and economic decisions influence environments and the daily lives of people in both nearby and distant places. Geo.8.6-8. Analyze how relationships between humans and environments extend or contract spatial patterns of settlement and movement. His.2.6-8. Classify series of historical events and developments as examples of change and/or continuity. His.4.6-8. Analyze multiple factors that influenced the perspectives of people during different historical eras. His.5.6-8. Explain how and why perspectives of people have changed over time. His.6.6-8. Analyze how people's perspectives influenced what information is available in the historical sources they created. His.10.6-8. Detect possible limitations in the historical record based on evidence collected from different kinds of historical sources.	over time. ● throughout history, people in a society are divided into social structures. ● religions develop for various reasons and spread to different regions over time. ● the Indus River, Ganges River, Himalayas, Arabian Sea, Indian Ocean, Bay of Bengal, Mohenjo-Daro, Harappa, and Nepal are significant geographical features in/around India. ● around 600 BC, Siddhartha Gautama was a religious leader who awakened Buddhism as a religion in India. ● the Aryans settled in India 3000 years ago (around 1500 BC) and contributed to the foundation of India's culture today. <u>*vocabulary*</u>: *subcontinent, monsoon, caste, jati, Brahmin, Sudras, Vaisyas, Kshatriyas, Untouchables, Hinduism, Dharma, Karma, reincarnation, Buddhism, nirvana, theocracy.*	● explaining the relationship between environment and identity ● explaining and analyzing cause and effect relationships ● analyzing connections in history ● using questioning techniques to analyze historical significance ● using geographic representations to explain relationships ● explaining the impact of decisions on humans and the environment ● analyzing the relationships between humans and their environment ● analyzing cause and effect relationships ● analyzing connections in history ● classifying events ● explaining and analyzing influences on historical perspectives ● analyzing the influence of perspective on the historical record ● evaluating the limitations of historical evidence ● explaining cause and effect relationships
Content Area Literacy Standards		***21st Century Skills***
● RH.6-8.1 Cite specific textual evidence to support analysis of primary and secondary sources. ● RH.6-8.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. ● RH.6-8.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. ● RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts ● WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. ● WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. ● WHST.6-8.8 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. ● WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.		● *make judgments and decisions* ● *communicate clearly* ● *collaborate with others* ● *manage goals and time* ● *be self-directed learners*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	***Mathematics Integration***
● 1.OA.1 Use	● 1.OA.1 Use
Technology Integration	***District Materials***
● 1.OA.1 Use	

Grade 6: Mesoamerica

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to evaluate causal relationships in order to analyze change and continuity over time.***
- ***Students will demonstrate the ability to analyze historical evidence in order to evaluate the influence and impact of perspective.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- Civ.14.6-8. Compare historical and contemporary means of changing societies, and promoting the common good.
- Eco.14.6-8. Explain barriers to trade and how those barriers influence trade among nations.
- Geo.2.6-8. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions, and changes in their environmental characteristics.
- Geo.4.6-8. Explain how cultural patterns and economic decisions influence environments and the daily lives of people in both nearby and distant places.
- Geo.5.6-8. Analyze the combinations of cultural and environmental characteristics that make places both similar to and different from other places.
- Geo.6.6-8. Explain how the physical and human characteristics of places and regions are connected to human identities and cultures.
- Geo.8.6-8. Analyze how relationships between humans and environments extend or contract spatial patterns of settlement and movement.
- Geo.10.6-8. Analyze the ways in which cultural and environmental characteristics vary among various regions of the world.
- His.1.6-8. Analyze connections among events and developments in broader historical contexts.
- His.2.6-8. Classify series of historical events and developments as examples of change and/or continuity.
- His.3.6-8. Use questions generated about individuals and groups to analyze why they, and the developments they shaped, are seen as historically significant.
- His.4.6-8. Analyze multiple factors that influenced the perspectives of

Transfer

*Students will be able to independently use their learning to **analyze the effects of various perspectives of historical events.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- history is interpretive; and people construct different accounts of the same event, which are shaped by their perspectives—their ideas, attitudes, and beliefs.
- there are genetic predispositions to behavioral patterns, but human behavior is also influenced by the environment.
- individual and group identity is socially constructed through relationships with significant individuals, groups, and society as a whole.

ESSENTIAL QUESTIONS

- *Is there one right way to view an event?*

Acquisition

Students will know…

- that Mesoamerica's geography had an impact on their history;
- that the Mesoamericans were master builders;
- that the Mesoamericans had a very advanced civilization;
- that the Mesoamericans were creative innovators;
- that the Mesoamerican civilizations came to an end with the arrival of the Europeans;
- that the Mesoamericans viewed the European explorers differently;
- that the interactions between the Mesoamericans and Europeans became hostile
- of the following key players, places, events, and/or ideas:
  - *Aztec, Maya, Inca, Cuzco, Machu Pichu, Tenochtitlan, Lake Tecxoco, Montezuma, Atahualpa, Hernan Cortes, Francisco Pizarro*

Students will be skilled at…

- analyzing the impact of societal change over time;
- explaining the influences that impact trade;
- using geographic representations to explain relationships;
- explaining the impact of decisions on humans and the environment;
- comparing and contrasting cultural and environmental characteristics;
- explaining the relationship between environment and identity;
- analyzing the relationships between humans and their environment;
- analyzing cause and effect relationships;
- analyzing connections in history;
- classifying events;
- using questioning techniques to analyze historical significance;

people during different historical eras. ● His.5.6-8. Explain how and why perspectives of people have changed over time. ● His.6.6-8. Analyze how people's perspectives influenced what information is available in the historical sources they created. ● His.10.6-8. Detect possible limitations in the historical record based on evidence collected from different kinds of historical sources. ● His.14.6-8. Explain multiple causes and effects of events and developments in the past.	<u>*vocabulary*</u>: quipu, conquistadors	● explaining and analyzing influences on historical perspectives; ● analyzing the influence of perspective on the historical record; ● evaluating the limitations of historical evidence; ● explaining cause and effect relationships.
Content Area Literacy Standards		***21st Century Skills***
● RH.6-8.1 Cite specific textual evidence to support analysis of primary and secondary sources. ● RH.6-8.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. ● RH.6-8.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. ● RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts ● WHST.6-8.1 Write arguments focused on discipline-specific *content*. ● WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. ● WHST.6-8.8 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. ● WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.		● *make judgments and decisions* ● *communicate clearly* ● *collaborate with others* ● *manage goals and time* ● *be self-directed learners*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	***Mathematics Integration***
● 1.OA.1 Use	● 1.OA.1 Use
Technology Integration	***District Materials***
● 1.OA.1 Use	

Grade 6: Greece

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Students will demonstrate the ability to analyze the reciprocal relationships among human and physical systems by evaluating geospatial data, historical evidence, economic activity, and political decisions.**
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- Civ.6.6-8. Describe the roles of political, civil, and economic organizations in shaping people's lives.
- Civ.12.6-8. Assess specific rules and laws (both actual and proposed) as means of addressing public problems.
- Civ.14.6-8. Compare historical and contemporary means of changing societies, and promoting the common good.
- D4.6.6-8. Draw on multiple disciplinary lenses to analyze how a specific problem can manifest itself at local, regional, and global levels over time, identifying its characteristics and causes, and the challenges and opportunities faced by those trying to address the problem.
- D4.7.6-8. Assess their individual and collective capacities to take action to address local, regional, and global problems, taking into account a range of possible levers of power, strategies, and potential outcomes.
- D4.8.6-8. Apply a range of deliberative and democratic procedures to make decisions and take action in their classrooms and schools, and in out-of-school civic contexts.
- Geo.5.6-8. Analyze the combinations of cultural and environmental characteristics that make places both similar to and different from other places.
- Geo.6.6-8. Explain how the physical and human characteristics of places and regions are connected to human identities and cultures.
- Geo.10.6-8. Analyze the ways in which cultural and environmental characteristics vary among various regions of the world.
- His.1.6-8. Analyze connections among events and developments in broader historical contexts.
- His.3.6-8. Use questions generated about individuals and groups to analyze why they, and the developments they shaped, are seen as

Transfer

*Students will be able to independently use their learning to **analyze how a civilization's culture shapes its people, landscape, and events.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- Earth's human systems and physical systems are in constant interaction and have reciprocal influences flowing among them.
- major social and historical events can be a force in socializing entire generational groups.
- social structure and culture work in tandem to shape societies, but are not completely rigid.

ESSENTIAL QUESTIONS

- *Is there such a thing as a "perfect culture?"*

Acquisition

Students will know…

- that Greece's geography had an impact on their history;
- that Greece was made up of many independent city-states;
- that Greek city-states were known as a polis;
- that only certain people were considered citizens in the polis;
- that these city-states had rivalries (Athens vs Sparta);
- that the Olympics provided the Greeks an opportunity to come together;
- of the following key players, places, events, and/or ideas:
  - *Athens, Sparta, Olympia, Leonidas, Persia, Marathon, Thermopylae, Themistocles, Xerxes, Salamis*

Students will be skilled at…

- describing the impact of organizations on people;
- comparing means of changing society over time;
- drawing on multiple disciplinary lenses to analyze a problem;
- assessing capacities to take action;
- considering options for addressing a problem;
- comparing and contrasting cultural and environmental characteristics;
- explaining the relationship between environment and identity;
- explaining and analyzing cause and effect relationships;
- analyzing connections in history;
- using questioning techniques to analyze historical significance

vocabulary: polis, helot, citizen, oligarchy, tyrant

historically significant. ● His.14.6-8. Explain multiple causes and effects of events and developments in the past.		
Content Area Literacy Standards		***21st Century Skills***
● RH.6-8.1 Cite specific textual evidence to support analysis of primary and secondary sources. ● RH.6-8.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. ● RH.6-8.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. ● RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts ● WHST.6-8.1 Write arguments focused on discipline-specific *content*. ● WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. ● WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. ● WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. ● WHST.6-8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. ● WHST.6-8.8 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. ● WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.		● *make judgments and decisions* ● *communicate clearly* ● *collaborate with others* ● *manage goals and time* ● *be self-directed learners*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	***Mathematics Integration***
● 1.OA.1 Use	● 1.OA.1 Use
Technology Integration	***District Materials***
● 1.OA.1 Use	

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EXECUTIVE SUMMARY

TRHS Math Curriculum Revisions

Course: Geometry

TRHS Math Department is proposing curriculum revisions for Geometry. The only change is to the course competencies. The current five course competencies (some of which are unit specific) are revised to two course competencies that repeat in every unit. The new competencies will be measured over time with each unit's specific content elements. Please see below. The "apply" and "solve" competencies are consolidated into one competency called "solve" that includes the language of both "apply" and "solve." The "congruence," "similarity," and "circles" competencies will be replaced with one "reason" competency that can be applied to each specific unit's content of "congruence," "similarity," and "circles." All other aspects of the curriculum units remain the same.

(PROPOSED NEW) Geo.Solve: ***Students will demonstrate the ability to solve problems involving one- two- and three-dimensional objects by applying algebraic models and geometric formulas.***

Geo.Apply: Students will demonstrate the ability to apply algebraic models to express geometric relationships.

Geo.Solve: Students will demonstrate the ability to model with geometric formulas in order to solve problems involving one- two- and three dimensional objects.

(PROPOSED NEW) Geo.Reason: ***Students will demonstrate the ability to reason with definitions, properties, and theorems of geometry to create conjectures and to prove or analyze statements.***

Geo.Congruence: Students will demonstrate the ability to reason with the definitions and theorems of geometry in order to create conjectures and prove statements about congruence.

Geo.Similarity: Students will demonstrate the ability to reason with the definitions and theorems of geometry in order to construct, apply, and prove statements about similarity.

Geo.Circles: Students will demonstrate the ability to reason with the definitions and theorems of geometry in order to create conjectures and prove statements about circles.

Thank you to the TRHS Geometry PLC and TRHS Math Department for their coordination and collaboration on these comprehensive competency revisions.

TRHS Math Curriculum Revisions cont'd

Course: Probability Statistics Trigonometry

The TRHS Math Department is proposing curriculum revisions for Probability Statistics Trigonometry. The only change is to the course competencies. All other aspects of the curriculum documents remain the same.The current 12 course competencies are revised to 8 course competencies, some that repeat in several units and some that are specific to one unit's content. Of the 12 original, 5 are remaining the same and the other 7 are either merged by competency wording or eliminated but merged by curriculum skill.

In the new curriculum documents, the "graphing," "modeling," and "logic" competencies repeat in multiple units as they are skills/mathematical practices that apply to various contents (display data, functions, and patterns; use real world problems; and reason abstractly and quantitatively). The new "apply trigonometry," "apply statistics," "apply probability," "matrices," "sequences and series," competencies are embedded in the units in which the skills/content matches.

Here is a breakdown of the units and their competencies:

The Trigonometry unit competencies include: apply trigonometry, graphing, and modeling.

The Statistics unit competencies include: apply statistics, graphing, modeling, and logic.

The Probability unit competencies include: apply probability, graphing, modeling, and logic.

The Matrices unit competencies include: matrices, modeling, and graphing.

The Sequences and Series unit competencies include: sequences and series, modeling, graphing,and logic.

The Logic unit competencies include: logic and modeling.

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ORIGINAL Competencies

Students will demonstrate the ability to apply trigonometric functions to solve for unknown quantities.
(Competency merged and all "I can statements" in the rubric remain in the APPLY TRIG rubric)

Students will demonstrate the ability to reason with the definitions, laws, and identities of trigonometry in order to create conjectures and prove statements
(Competency merged and 3 "I can statements" from the REASON TRIG rubric were moved to the APPLY TRIG rubric and 3 "I can statements" to the MODELING rubric)

Students will demonstrate the ability to graph functions by using tables and analyzing equations.
(No change to this competency)

Students will demonstrate the ability to solve for missing quantities by applying the law of sines, law of cosines and vectors.
(Competency eliminated and "I can statements" on the rubric moved to the GRAPHING and the MODELING rubrics.)

Students will demonstrate the ability to apply statistical methods in order to collect, organize, and interpret data.
(No change to this competency)

Students will demonstrate the ability to apply regression/ correlation techniques in order to determine relationships that exist between two variables.
(Competency eliminated and "I can statements" on the rubric added to the APPLY STATS competency rubric)

Students will demonstrate the ability to apply the principles of experimental and theoretical probability in order to determine the likelihood of a given outcome, make inferences, and justify or critique conclusions
(Competency merged and the "I can statements" on the rubric moved to APPLY PROB rubric)

Students will demonstrate the ability to apply matrices to solve problems in a variety of contexts. **(No change to this competency)**

Students will demonstrate the ability to simplify algebraic expressions and equations by applying the properties of operations and arithmetic of complex numbers.
(Competency eliminated and all of the "I can statements" on the rubric were moved to the SOLVED SEQUENCES rubric and renamed to SEQUENCES AND SERIES).

Students will demonstrate the ability to apply functions to solve problems in a variety of contexts by interpreting and analyzing multiple representations of functions.
(Competency merged)

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Students will demonstrate the ability to model real world problems by building and analyzing the appropriate expression, equation, or function.
(No change to this competency)

Students will demonstrate the ability to use mathematical reasoning in order to comprehend and construct mathematical arguments
(No change to this competency)

NEW Competencies

APPLY PROBABILITY = Students will demonstrate the ability to apply functions and the principles of experimental and theoretical probability in order to determine the likelihood of a given outcome, make inferences, and justify or critique conclusions in a variety of contexts by interpreting and analyzing multiple representations of functions.

APPLY STATS = Students will demonstrate the ability to apply statistical methods in order to collect, organize and interpret data.

APPLY TRIG = Students will demonstrate the ability to apply trigonometric functions, definitions, laws, and identities to solve for unknown quantities, create conjectures, and prove statements.

GRAPH = Students will demonstrate the ability to graph functions by using tables and analyzing equations.

LOGIC = Students will demonstrate the ability to use mathematical reasoning in order to comprehend and construct mathematical arguments.

MATRICES = Students will demonstrate the ability to apply matrices to solve problems in a variety of contexts.

MODELING = Students will demonstrate the ability to use mathematics to model real world problems by building and analyzing the appropriate expression, equation, or function.

SEQUENCES AND SERIES = Students will demonstrate the ability to apply functions to solve problems in a variety of contexts by interpreting and analyzing multiple representations of functions.

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Thank you to the TRHS Probability Statistics Trigonometry PLC and TRHS Math Department for their time and effort in collaborating on the thoughtful reflection of the implementation of the course competencies and all proposed revisions.

Respectfully submitted,

Jennifer Puchlopek, Secondary Curriculum Coordinator

Geometry: Basics of Geometry

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to solve problems involving one- two- and three-dimensional objects by applying algebraic models and geometric formulas.***
- ***Students will demonstrate the ability to reason with definitions, properties, and theorems of geometry to create conjectures and to prove or analyze statements.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
- G.CO.9 Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.
- G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding. dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment: and constructing a line parallel to a given line through a point not on the line.
- G.GPE.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
- G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and uses them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
- MP2 Reason abstractly and quantitatively.
- MP3 Construct viable arguments and critique the reasoning of others.
- MP6 Attend to precision.
- MP7 Look for and make use of structure.

Transfer

*Students will be able to independently use their learning to **make logical arguments that are supported by evidence.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- a proof goes beyond supporting or justifying; it proves for all cases.
- the tools of geometry allow us to study real-world situations.

ESSENTIAL QUESTIONS

- How can you know when a conclusion is valid?
- What would civilization be like without an understanding of geometry?

Acquisition

Students will know…

- *that 2 points define a line and that 3 noncollinear points define a plane.*
- *that 2 planes intersect in a line.*
- *that if three (or more) parallel lines cut off congruent segments on one transversal, then they cut off congruent segments on every transversal.*
- *the Angle Pair Relationships including those formed by transversals and/or parallel lines (and their converses).*
- *that a counterexample disproves a conjecture, but that an example does not prove a conjecture.*
- *why we call points, lines and planes the "Essentials of Geometry" .*
- *the following properties, proofs, formulas, and postulates:*
  - *Properties of Equality*
  - *Properties of Congruence*
  - *2-column Proofs*
  - *Paragraph Proofs*
  - *Flow Proofs*
  - *Segment Addition Postulate*
  - *Angle Addition Postulate*
  - *Midpoint Formula*
  - *Distance Formula*

Students will be skilled at…

- *using undefined terms (points, lines, and planes) to describe and analyze relationships.*
- *using symbolic notation.*
- *applying angle and segment addition postulates (leading to proofs) to solve for unknown values to determine angle/segment measures.*
- *observing patterns to make conjectures.*
- *creating and analyzing conjectures and determining their truth values.*
- *justifying the steps involved in solving equations using properties of equality.*
- *creating formal geometric constructions using a variety geometric tools and methods.*
- *finding the midpoint given two endpoints and finding an endpoint given an endpoint and midpoint using the midpoint formula.*
- *finding the length of a segment given two coordinate points using the distance formula.*
- *identifying angle-pair relationships.*
- *proving geometric relationships through 2-column, paragraph and flow proofs.*
- *using given information, definitions, properties, postulates, and theorems in proofs.*

• MP8 Look for and express regularity in repeated reasoning.	<u>vocabulary:</u> *point, line, plane, collinear points, coplanar, space, segment, ray, opposite rays, postulate, axiom, intersection, congruent segments, midpoint, segment bisector, congruent angles, adjacent angles, vertical angles, complementary angles, supplementary angles, linear pair, angle bisector, perpendicular bisector, equidistant, inductive reasoning, conjecture, counterexample, conditional, hypothesis, conclusion, truth value, negation, converse, inverse, contrapositive, equivalent statements, biconditional, deductive reasoning, reflexive, symmetric, transitive, proof, skew lines, transversal, alternate interior angles, consecutive (same-side) interior angles, corresponding angles, alternate exterior angles, exterior angle of a polygon, remote interior angle*	• *proving that parallel lines have the same slope and that perpendicular lines have opposite reciprocal slopes.* • *proving that vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
Content Area Literacy Standards		***21st Century Skills***
• RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. • RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text. • RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. • RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9-10 texts and topics*. • RST.9-10.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., *force, friction, reaction force, energy*). • RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.		• *reason effectively* • *use systems thinking* • *think creatively* • *be flexible*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Geometry: Triangles

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to solve problems involving one- two- and three-dimensional objects by applying algebraic models and geometric formulas.***
- ***Students will demonstrate the ability to reason with definitions, properties, and theorems of geometry to create conjectures and to prove or analyze statements.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles arc congruent.
- G.CO.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
- G.CO.10 Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
- G.CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.
- G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- G.SRT.7 Explain and use the relationship between the sine and cosine of complementary angles.
- G.SRT.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
- G.SRT.8 Use trigonometric ratios and the Pythagorean Theorem to

Transfer

*Students will be able to independently use their learning to **identify the relevant information required to draw a valid conclusion.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- triangles are the basic building blocks of polygons.
- relationships between the components of triangles can be used to determine the measures of other components.

ESSENTIAL QUESTIONS

- How do you know when you have enough relevant information?

Acquisition

Students will know…

- *that if a line bisects the vertex angle of an isosceles triangle, then the line is also the perpendicular bisector of the base.*
- *that if two sides of a triangle are not congruent, then the larger angle lies opposite the longer side.*
- *that if two angles of a triangle are not congruent, then the longer side lies opposite the larger angle.*
- *that if the square of the length of the longest side of a triangle is greater (less) than the sum of the squares of the lengths of the other two sides, then the triangle is obtuse (acute).*
- *that corresponding parts of congruent triangles are congruent. (CPCTC)*
- *the following theorems, postulates, ratios, and properties:*
  - *Third Angles Theorem*
  - *Triangle Congruence Postulates/Theorem*
  - *45-45-90 Triangle Theorem*
  - *30-60-90 Triangle Theorem*
  - *Trigonometric ratios*
  - *Hypotenuse-Leg (HL) Theorem*
  - *Triangle Midsegment Theorem*
  - *Perpendicular Bisector Theorem and its converse*
  - *Angle Bisector Theorem and its converse*
  - *Concurrency Theorems*

Students will be skilled at…

- *labeling diagrams.*
- *applying properties of a triangle midsegment, perpendicular bisector, and angle bisector.*
- *proving triangles congruent using SSS, SAS, ASA, AAS, and HL congruence theorems/postulates.*
- *creating points of concurrency along with inscribed and circumscribed circles.*
- *applying the properties of the points and lines of concurrency.*
- *proving conclusions using indirect reasoning and proof.*
- *applying the inequality properties of an individual triangle.*
- *applying the inequality properties of two triangles.*
- *using Pythagorean Theorem to solve for the missing side of a triangle.*
- *classifying triangles as acute, obtuse, or right using the Pythagorean Theorem and its converse.*
- *applying the properties of special right triangles to find missing side lengths.*
- *identifying the relationships and properties*

solve right triangles in applied problems. • MP2 Reason abstractly and quantitatively. • MP3 Construct viable arguments and critique the reasoning of others. • MP4 Model with mathematics. • MP7 Look for and make use of structure. • MP8 Look for and express regularity in repeated reasoning.	o *Isosceles Triangle Theorem, its converse, and its corollaries* o *Comparison Property of Inequality* o *Corollary to Triangle Exterior Angle Theorem* o *Triangle Inequality Theorem* o *The Hinge Theorem (SAS Inequality Theorem) and its converse (SSS Inequaltiy)* o *Pythagorean Theorem and its converse* *<u>vocabulary:</u> congruent figures, congruent triangles, corollary, triangle, midsegment, concurrent, points of concurrency, circumcenter, circumscribed about, incenter, inscribed in, median, centroid, altitude, orthocenter, Pythagorean triple, sine, cosine, tangent, angle of elevation, angle of depression, corresponing parts*	*within overlapping triangles.* • *applying trigonometric properties to find missing angle and side measures of right triangles.* • *applying coordinate geometry to find relationships within triangles.*
Content Area Literacy Standards		***21st Century Skills***
• RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. • RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. • RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9-10 texts and topics*. • RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.		• *reason effectively* • *use systems thinking* • *access and evaluate information* • *use and manage information* • *think creatively*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Geometry: Similarity and Transformations

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to solve problems involving one- two- and three-dimensional objects by applying algebraic models and geometric formulas.***
- ***Students will demonstrate the ability to reason with definitions, properties, and theorems of geometry to create conjectures and to prove or analyze statements.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- G.SRT.1ab Verify experimentally the properties of dilations given by a center and a scale factor.
  - A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
  - The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
- G.SRT.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
- G.SRT.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
- G.SRT.4 Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.
- G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- G.CO.2 Represent transformations in the plane using, e.g. transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g.. translation versus horizontal stretch).
- G.CO.3 Given a rectangle, parallelogram, trapezoid, or regular

Transfer

*Students will be able to independently use their learning to **manipulate objects to create a desired outcome.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- if similarity is maintained, the relationships between the components stay constant.
- similarity is an important tool in indirect measurement.
- similarity can be proven through geometric transformations.

ESSENTIAL QUESTIONS

- What consequences can result from manipulation?
- How do geometric transformations uncover the relationships in similar figures?

Acquisition

Students will know…

- *that equality refers to values and measurements whereas congruence refers to objects.*
- *that polygons can be proven similar using proportions.*
- *that the distance from the center of dilation to each corresponding vertex of similar figures retains the scale factor between the figures.*
- *that special segments will split a triangle proportionally.*
- *that an angle bisector cuts an angle into two equal halves.*
- *that the altitude drawn to the hypotenuse of a right triangle creates two similar right triangles, each similar to the original right triangle and similar to each other.*
- *that similar triangles can create a geometric mean.*
- *the following postulates and theorems:*
  - *AA, SAS, SSS Triangle postulates*
  - *Side-splitter Theorem and its corollary*
  - *Triangle-Angle-Bisector Theorem*

Students will be skilled at…

- *writing and solving proportions based on given information.*
- *applying similarity theorems to prove triangle similarity.*
- *transforming pre-images to their images both on and off the coordinate plane using translations, reflections, rotations, and dilations for figures.*
- *determining new coordinates after any given transformation.*
- *identifying congruence transformations and proving congruence using isometries.*
- *identifying similarity transformations and verifying properties of similarity.*
- *using triangle similarity to prove the Pythagorean Theorem.*
- *using congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*

polygon, describe the rotations and reflections that carry it onto itself. • G.C0.4 Develop definitions of rotations, reflections, and lines, parallel lines, and line segments. • G.CO.5 Given a geometric figure and a rotation. reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. • G.CO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they arc congruent. • MP1 Make sense of problems and persevere in solving them. • MP2 Reason abstractly and quantitatively. • MP6 Attend to precision. • MP7 Look for and make use of structure. • MP8 Look for and express regularity in repeated reasoning.	*<u>vocabulary:</u> extremes of a proportion, geometric mean, indirect measurement, means of a proportion, ratio, extended ratio, proportion, extended proportion, scale, scale drawing, scale factor, similar, similar polygons, indirect measurement, congruence transformation, dilation, image, isometry, preimage, reflection, rigid motion, rotation, similarity transformation, translation, compositions of transformations*	
Content Area Literacy Standards		***21st Century Skills***
• RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. • RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.		• *reason effectively* • *use systems thinking* • *make judgments and decisions* • *solve problems* • *communicate clearly* • *access and evaluate information*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Geometry: Polygons

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to solve problems involving one- two- and three-dimensional objects by applying algebraic models and geometric formulas.***
- ***Students will demonstrate the ability to reason with definitions, properties, and theorems of geometry to create conjectures and to prove or analyze statements.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- G.CO.11 Prove theorems about parallelograms
- G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- G.GPE.4 Use coordinates to prove simple geometric theorems algebraically
- G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles
- G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc
- G.MG.1 Use geometric shapes, their measures, and their properties to describe objects
- MP2 Reason abstractly and quantitatively.
- MP3 Construct viable arguments and critique the reasoning of others.
- MP5 Use appropriate tools strategically.
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

Transfer

*Students will be able to independently use their learning to **make determinations about an object based on how it is categorized.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- quadrilaterals inherit their properties from a hierarchy of other quadrilaterals.
- the area formulas for a triangle and rectangle can be applied to find the area formulas for all quadrilaterals.

ESSENTIAL QUESTIONS

- When is it appropriate to make a generalization about a group?

Acquisition

Students will know…

- *that if a quadrilateral is a parallelogram, then its*
  - *opposite sides are congruent.*
  - *consecutive angles are supplementary.*
  - *opposite angles are congruent.*
  - *diagonals bisect each other.*
- *that if both pairs of opposite sides of a quadrilateral are congruent, then the quadrilateral is a parallelogram.*
- *that if an angle of a quadrilateral is supplementary to both of its consecutive angles, then the quadrilateral is a parallelogram.*
- *that if both pairs of opposite angles of a quadrilateral are congruent, then the quadrilateral is parallelogram.*
- *that if the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram.*
- *that if one pair of opposite sides of a quadrilateral is both congruent and parallel, then the quadrilateral is a parallelogram.*
- *that if a parallelogram is a rhombus, then*
  - *its diagonals are perpendicular.*
  - *each diagonal bisects a pair of opposite angles.*

Students will be skilled at…

- *determining angle measures using diagonals.*
- *writing coordinate proofs using slope and distance formulas to prove sides/diagonals congruent/parallel/perpendicular.*
- *writing proofs using properties of polygons and special parallelograms .*
- *applying formulas to find area of parallelograms, triangles, trapezoids, rhombuses, kites, and regular polygons.*
- *using trigonometric ratios to find area of regular polygons and any triangle.*
- *using area and perimeter ratios of similar figures to determine unknown values .*

	• *that if a parallelogram is a rectangle, then its diagonals are congruent.* • *that if the diagonals of a parallelogram are perpendicular, then the parallelogram is a rhombus.* • *that if one diagonal of a parallelogram bisects a pair of opposite angles, then the parallelogram is a rhombus.* • *that if the diagonals of a parallelogram are congruent, then the parallelogram is a rectangle.* • *that if a quadrilateral is a trapezoid, then the* o *midsegment is parallel to the bases.* o *length of the midsegment is half the sum of the lengths of the bases.* • *that if a quadrilateral is an isosceles trapezoid, then* o *each pair of base angles is congruent.* o *its diagonals are congruent.* • *that if a quadrilateral is a kite, then its diagonals are perpendicular.* • *the area formulas for rectangles, parallelograms, triangles, trapezoids, rhombuses, kites, and regular polygons.* • *the ratios for the perimeters and areas of similar figures.* • *the following theorems:* o *Polygon Angle-Sum Theorem and its corollary* o *Polygon Exterior Angle-Sum Theorem* <u>vocabulary:</u> *equianglular polygon, equilateral polygon, regular polygon, consecutive angles, rectangle, rhombus, trapezoid, isosceles trapezoid, kite, coordinate proof, apothem*	
Content Area Literacy Standards		***21st Century Skills***
• RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. • RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9-10 texts and topics*. • RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.		• *reason effectively* • *make judgements and decisions* • *solve problems* • *communicate clearly*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Geometry: Surface Area and Volume

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to solve problems involving one- two- and three-dimensional objects by applying algebraic models and geometric formulas.***
- ***Students will demonstrate the ability to reason with definitions, properties, and theorems of geometry to create conjectures and to prove or analyze statements.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will emonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
- G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).
- G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).
- G.GMD.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri 's principle, and informal limit arguments.
- G.GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
- G.GMD.4 Identify the shapes of two-dimensional cross-sections of three dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
- MP2 Reason abstractly and quantitatively.
- MP3 Construct viable arguments and critique the reasoning of others.
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

Transfer

Students will be able to independently use their learning to ***apply their understanding of two- and three-dimensional space to create models that most efficiently utilize resources.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- three dimensional figures are created from two dimensional figures; therefore the formulas for finding the surface area of three dimensional figures are based on the formulas of finding the area of two dimensional figures.

ESSENTIAL QUESTIONS

- What are the relationships between finding area, surface area, and volume of two- and three-dimensional figures?

Acquisition

Students will know…

- *that mapping three dimensions onto two (or two onto three) may introduce distortions.*
- *the following formulas and principles:*
  - *Euler's Formula*
  - *Cavalieri's Principle*
  - *lateral and surface area formulas of a prism, cylinder, pyramid, and cone*
  - *volume formulas of a prism, cylinder, pyramid, and cone.*
  - *surface area and volume formulas of a sphere.*

vocabulary: face, polyhedron, cross section, lateral area, surface area, prism, right prism, oblique prism, bases, lateral faces, altitude, height, cylinder, right cylinder, oblique cylinder, pyramid, lateral faces, vertex, regular pyramid, slant height, cone, right cone, volume, similar solids, sphere, great circle, hemispheres, composite space figures, density

Students will be skilled at…

- *examining and describing cross sections.*
- *using dissection arguments, Cavalieri 's principle, and limit arguments to create the following formulas informally:*
  - *circumference of a circle*
  - *area of a circle*
  - *volume of a cylinder, pyramid, and cone*
- *calculating lateral area of prisms, pyramids, cylinders, and cones.*
- *calculating surface area of prisms, pyramids, cylinders, cones, and spheres.*
- *calculating volume of prisms, pyramids, cylinders, cones, and spheres.*
- *using Cavalieri's Principle to compare volumes.*
- *using ratios of similar solids to compare area and volumes of similar solids.*
- *applying concepts of density based on area and volume in modeling situations.*

Content Area Literacy Standards

21st Century Skills

• RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. • RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.	• *reason effectively* • *use systems thinking* • *communicate clearly* • *make judgments and decisions*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Geometry: Circles

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to solve problems involving one- two- and three-dimensional objects by applying algebraic models and geometric formulas.***
- ***Students will demonstrate the ability to reason with definitions, properties, and theorems of geometry to create conjectures and to prove or analyze statements.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- G.C.A.1 Prove that all circles are similar.
- G.CA.2 Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.
- G.CA.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
- G.CA.5 Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.
- G.GPE.1 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
- G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc
- G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
- MP2 Reason abstractly and quantitatively.
- MP5 Use appropriate tools strategically.
- MP6 Attend to precision.
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

Transfer

*Students will be able to independently use their learning to **apply their knowledge of circles to model and solve problems.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- circles can be used to describe angles and prove a variety of geometric theorems.
- all circles are similar.

ESSENTIAL QUESTIONS

- Why have cultures throughout history considered circles to be the perfect shape?

Acquisition

Students will know…

- *that if a line is tangent to a circle, then the line is perpendicular to the radius at the point of tangency (and the converse).*
- *that if two tangent segments in a circle share a common endpoint outside the circle, then the two segments are congruent.*
- *that, within a circle or in congruent circles,*
  - *congruent central angles have congruent arcs (and the converse).*
  - *congruent central angles have congruent chords (and the converse).*
  - *congruent chords have congruent arcs (and the converse).*
  - *chords equidistant from the center or centers are congruent (and the converse).*
- *that, in a circle,*
  - *if a diameter is perpendicular to a chord, then it bisects the chord and its arc.*
  - *if a diameter bisects a chord (that is not a diameter), then it is perpendicular to the chord.*
  - *the perpendicular bisector of a chord contains the center of the circle.*
- *the inscribed Angle Theorem and its corollaries.*
- *the measure of an angle formed by a tangent and*

Students will be skilled at…

- *applying the properties of chords, tangents, secants, and radii as they relate to each other and their corresponding circles.*
- *proving that all circles are similar.*
- *finding and using measures of angles formed by chords/ tangents/secants/radii and arcs.*
- *writing the equation of a circle.*
- *deriving the equation for a circle using the Pythagorean Theorem.*
- *describing a circle given the equation, including completing the square to find the center and radius of a circle given by an equation.*
- *deriving the formula for the area of a sector.*
- *determining the measures of angles, arcs, and segments from lines intersecting (or within) a circle.*

	a chord is half the measure of the intercepted arc. • *the measure of an angle formed by two lines that intersect inside a circle (secants) is half the sum of the measures of the intercepted arcs.* • *the measure of an angle formed by two lines that intersect outside a circle (2 secants, 2 tangents, 1secant and 1 tangent) is half the difference of the measures of the intercepted arcs.* • *that, for a given point and a circle, the product of the lengths of the two segments from the point to the circle is constant along any line through the point and circle (3 cases).* • *the standard equation of a circle.* • *the radian as a unit of measure.* • *the relationships between angles and arcs in a circle.* *<u>vocabulary:</u> sector, tangent to a circle, point of tangency, chord, inscribed angle, intercepted arc, secant, minor arc, major arc*	
Content Area Literacy Standards		***21st Century Skills***
• RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. • RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9-10 texts and topics*. • RST.9-10.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., *force, friction, reaction force, energy*). • RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.		• reason effectively • use systems thinking • solve problems • communicate clearly

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Probability, Statistics & Trigonometry: Trigonometry

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to apply trigonometric functions, definitions, laws, and identities to solve for unknown quantities, create conjectures, and prove statements.***
- ***Students will demonstrate the ability to graph functions by using tables and analyzing equations.***
- ***Students will demonstrate the ability to use mathematics to model real world problems by building and analyzing the appropriate expression, equation, or function.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- HSG.SRT.C.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
- HSG.SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.
- HSG.SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
- HSG.SRT.D.9 (+) Derive the formula A = 1/2 ab sin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite
- HSN.VM.A.1 (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., **v**, |**v**|, ||**v**||, **v**).
- HSN.VM.A.2 (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.

Transfer

*Students will be able to independently use their learning to **understand and make predictions involving periodic phenomena.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- in order to solve problems involving physical phenomena which carry a direction, the mathematics must consider both the magnitude and the direction.

ESSENTIAL QUESTIONS

- How can we use trigonometry to solve problems with real world applications?
- How can we use trigonometry as a tool to describe the world around us?

Acquisition

Students will know…

- *that trig definitions describe a specific ratio between two sides of a right triangle and are unitless.*
- *that right triangles can be used to solve problems that would be impossible to solve using direct measure.*
- *six trig definitions from two contexts*
  - *coordinate standpoint x, y, r*
  - *geometric standpoint opposite leg length, adjacent leg length, hypotenuse length*
- *exact and decimal values of trig ratios for the construction triangles:* 45°-45°-90° and 30°-60°-90°
- *the basic trig identities.*
- *the cofunction theorem.*
- *that 1 degree = 60 minutes and 1 minute = 60 seconds*
- r@θ° *format for vector quantities*
- *that approximately 6 radians exist on the edge of a given circle relative to its size*
- *that radians are unitless but a more accurate measure than degrees.*
- *the difference between linear and angular velocities*

Students will be skilled at…

- *calculating exact and decimal values of six trig functions given one.*
- *(x,y) point on the terminal side of theta ϑ in standard position.*
- *calculating exact and decimal values of six trig functions given one angle and one side of a right triangle.*
- *calculating exact and decimal values of six trig functions given only an angle that is an increment of 30° or 45°.*
- *calculating exact and decimal values of remaining trig functions given one trig ratio in any quadrant.*
- *calculating and interpreting a reference angle given a trig ratio.*
- *using trig identities to prove equivalencies.*
- *converting angle measure between decimal degrees and degrees, minutes, seconds formats.*
- *determining the measurements of missing sides and angles in a right triangle, including multiple right triangles in a single situation.*
- *calculating the height of an object indirectly*
- *representing vectors accurately using graph paper, ruler, protractor to scale as well as abstractly.*
- *drawing and labeling an accurate representation of*

• CCSS.MATH.CONTENT.HSN.VM.A.3 (+) Solve problems involving velocity and other quantities that can be represented by vectors. • HSN.VM.B.4 (+) Add and subtract vectors. o Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes. • HSN.VM.B.5 (+) Multiply a vector by a scalar. o Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as c(vx, vy) = (cvx,cvy). • MP1 Make sense of problems and persevere in solving them. • MP2 Reason abstractly and quantitatively. • MP4 Model with mathematics. • MP6 Attend to precision. • MP7 Look for and make use of structure. • MP8 Look for and express regularity in repeated reasoning.	• *how unit analysis can assist to solve for missing information and to interpret given information.* • *how the graphs of sine, cosine and tangent connect* • *the criteria needed to determine which Law to apply when trying to find missing information given an oblique triangle.* • *Law of Sines and Law of Cosines* *Vocabulary: initial side or ray, terminal side or ray, standard position, positive angle, negative angle, rotation, coterminal angles, sine, cosine, tangent, cosecant, secant, cotangent, reference angle, reciprocalidentities, ratio identities, Pythagorean identities, odd-even identities,, refined angular measurement: degrees, minutes, seconds, angle of elevation, angle of depression, bearing vs. course, vector, scalar, vector components, resultant vector*	*a vector equation(i.e.* $\vec{r}=3\vec{u}+2\vec{v}$ if $\vec{u}=3cm@20°$ and $\vec{v}=7cm@52°$). • *adding and subtracting vectors.* • *multiplying a scalar by a vector.* • *modeling navigation by using vectors.* • *sketching angles of rotation in standard position given a radian or degree measure.* • *converting angles between degree and radian measure.* • *determining the reference angle for a given theta of rotation (in degrees or radian form)* • *interpreting and using all values labeled on the unit circle.* • *calculating and interpreting arc length in context* • *calculating and interpreting area sector in context* • *calculating and interpreting linear and angular velocities given a real life context.* • *solving equations using inverse functions.* • *graphing sine, cosine and tangent functions.* • *applying Law of Cosines depending on the given infomation* • *calculating the area of an oblique triangle given only SAS or SSS information.*
Content Area Literacy Standards		***21st Century Skills***
• RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. • RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. • RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*. • RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. • RST.11-12.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved. • RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. • RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.		• *reason effectively* • *use systems thinking* • *solve problems* • *be flexible*

Stage 2 - Evidence

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):

	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Probability, Statistics & Trigonometry: Statistics

Stage 1 Desired Results

Competencies:

- ***Students will demonstrate the ability to apply statistical methods in order to collect, organize and interpret data.***
- ***Students will demonstrate the ability to graph functions by using tables and analyzing equations.***
- ***Students will demonstrate the ability to use mathematics to model real world problems by building and analyzing the appropriate expression, equation, or function.***
- ***Students will demonstrate the ability to use mathematical reasoning in order to comprehend and construct mathematical arguments.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- HSS.ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).
- HSS.ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
- HSS.ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
- HSS.ID.B.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.
- HSS.ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
- HSS.IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
- HSS.IC.A.2 Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?
- HSS.IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
- HSS.IC.B.4 Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
- HSS.IC.B.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between

Transfer

*Students will be able to independently use their learning to **construct and defend a well thought out conclusion.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- statistical representations are beneficial for either studying certain characteristics or influencing certain interpretations of the data.
- just because there is a correlation between two things, that there is causation between them.

ESSENTIAL QUESTIONS

- Can you ever be sure that a conclusion is correct?
- How can we determine if our understandings of a relationship are correct?

Acquisition

Students will know…

- *that a parameter describes the entire population, whereas a statistic describes only a sample of the population.*
- *that the sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample.*
- *that frequency distribution tables can be used for both categorical and numeric variables.*
- *a line of best fit can be used to determine the linear relationship between two quantities.*
- *a linear correlation does not means that there is a causation between the two sets of data.*

vocabulary: statistics, population, census, sample, data, parameter, statistic, quantitative data, qualitative data, discrete data, continuous data, nominal level of measure, ordinal level of measure, interval level of measure, ratio level of measure, self-selected survey, loaded question, observational study, experiment, placebo effect, blinding, double blind, confounding, random sample, systematic sampling, convenience sampling, stratified sampling, cluster sampling, frequency table, lower class limits, upper class limits,

Students will be skilled at…

- *identifying a value as a statistic or parameter.*
- *identifying abuses of statistics.*
- *identifying observational study/experiment.*
- *identifying sampling method.*
- *identifying class width/midpoint/boundary.*
- *constructing a cumulative frequency table.*
- *constructing a frequency table given data.*
- *analyzing histograms.*
- *constructing histograms.*
- *constructing scatter diagrams.*
- *constructing pie charts.*
- *constructing dot plots.*
- *constructing Pareto charts.*
- *constructing stem and leaf plots.*
- *finding mean, median, mode, and midrange.*
- *finding mean of a frequency table.*
- *finding range, standard deviation, and variance.*
- *finding standard deviation of a frequency table.*
- *finding the value of a percentile/decile/quartile*
- *constructing a box plot.*
- *testing for linear correlation.*
- *constructing and interpreting a scatter diagram.*

parameters are significant. • HSS.IC.B.6 Evaluate reports based on data. • HSS.CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not"). • MP2 Reason abstractly and quantitatively. • MP3 Construct viable arguments and critique the reasoning of others. • MP4 Model with mathematics • MP5 Use appropriate tools strategically. • MP6 Attend to precision. • MP7 Look for and make use of structure. • MP8 Look for and express regularity in repeated reasoning.	*class boundaries, class midpoints, class width, relative frequency table, cumulative frequency table, histogram, relative frequency histogram, dotplot, stem and leaf plot, pareto chart, pie chart, scatter diagram, measure of center, mean, median, mode, bimodal, multimodal, midrange, range, standard deviation, variance, range rule of thumb, empirical rule, Chebyshev's theorem, z-score, quartiles, deciles, percentiles, exploratory data analysis, outlier, 5-number summary, boxplot, correlation, scatterplot, linear correlation, coefficient, regression equation/line*	• *finding the value of the linear correlation coefficient.* • *identifying correlation errors.* • *finding the equation of a regression line.* • *finding the best predicted value.*
Content Area Literacy Standards		***21st Century Skills***
• RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*. • RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. • RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.		• *reason effectively* • *use systems thinking* • *make judgments and decisions* • *solve problems* • *implement innovations* • *communicate clearly* • *analyze media* • *apply technology effectively*

Stage 2 - Evidence

Evaluative Criteria	*Assessment Evidence*
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Probability, Statistics & Trigonometry: Probability

Stage 1 Desired Results

Competencies:

- ***Students will demonstrate the ability to apply functions and the principles of experimental and theoretical probability in order to determine the likelihood of a given outcome, make inferences, and justify or critique conclusions in a variety of contexts by interpreting and analyzing multiple representations of functions.***
- ***Students will demonstrate the ability to graph functions by using tables and analyzing equations.***
- ***Students will demonstrate the ability to use mathematics to model real world problems by building and analyzing the appropriate expression, equation, or function.***
- ***Students will demonstrate the ability to use mathematical reasoning in order to comprehend and construct mathematical arguments.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- HSS.ID.A.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.
- HSS.CP.A.2 Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
- HSS.CP.A.3 Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*), and interpret independence of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.
- HSS.CP.A.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.
- HSS.CP.A.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung

Transfer

Students will be able to independently use their learning to ***construct and defend a well thought out prediction.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- the probability of an event's occurrence can be predicted with varying degrees of confidence.

ESSENTIAL QUESTIONS

- How confident can you be that a given outcome will occur?

Acquisition

Students will know…

- *the formulas for mean, standard deviation and variance of a binomial distribution.*
- *the formula for maximum and minimum usual values.*

vocabulary: event, sample space, classical approach to probability, relative frequency approximation of probability, subjective probability, complement, actual odds against, actual odds in favor, payoff odds, compound event, mutually exclusive, rule of complementary events, independent events, dependent events, fundamental counting rule, factorial, permutation, combination, random variable, probability distribution, discrete, continuous, binomial probability distribution, Poisson distribution, normal distribution, density curve, standard normal distribution, nonstandard normal distribution, central limit theorem

Students will be skilled at…

- *finding probability using the classical approach*
- *determining if an event is unusual.*
- *estimating probability using the relative frequency approach.*
- *listing all possible outcomes.*
- *determining if events are mutually exclusive.*
- *finding the probability of the complement of an event.*
- *using addition rule for mutually exclusive and non-mutually exclusive events.*
- *classifying events as independent or dependent.*
- *using multiplication rule for independent events.*
- *using addition rule for mutually exclusive events.*
- *describing the complement of a given event.*
- *finding the probability of "at least one".*
- *using contingency tables to find conditional probability.*
- *evaluating factorials, permutations, and combinations.*
- *finding and using a number of combinations and permutations.*
- *classifying random variables as discrete or continuous.*
- *determining whether a probability distribution is described.*

cancer. • HSS.CP.B.6 Find the conditional probability of *A* given *B* as the fraction of *B*'s outcomes that also belong to *A*, and interpret the answer in terms of the model. • HSS.CP.B.7 Apply the Addition Rule, *P*(*A* or *B*) = *P*(*A*) + *P*(*B*) - *P*(*A* and *B*), and interpret the answer in terms of the model. • HSS.CP.B.8 (+) Apply the general Multiplication Rule in a uniform probability model, *P*(*A* and *B*) = *P*(*A*)*P*(*B*|*A*) = *P*(*B*)*P*(*A*|*B*), and interpret the answer in terms of the model. • HSS.CP.B.9 (+) Use permutations and combinations to compute probabilities of compound events and solve problems. • MP1 Make sense of problems and persevere in solving them • MP2 Reason abstractly and quantitatively. • MP3 Construct viable arguments and critique the reasoning of others. • MP4 Model with mathematics. • MP7 Look for and make use of structure. • MP8 Look for and express regularity in repeated reasoning.		• *finding the mean, standard deviation, and variance of a probability distribution.* • *finding expected value.* • *determining if a procedure results in a binomial distribution.* • *finding the probability of exactly x successes* • *finding the probability of at least/at most x successes.* • *finding the mean, standard deviation, and variance for a binomial distribution.* • *finding probability for continuous uniform distributions.* • *finding probability for standard normal distributions given z-score(s).* • *using z-score to compare relative position.* • *finding the percentile corresponding to a given value.* • *finding z-score for standard normal distributions given probability (area) and determine if it is unusual.* • *finding probability for nonstandard normal distributions.* • *finding the number of observations satisfying a given condition.* • *finding values for a normal distribution given probabilities or percentages.*
Content Area Literacy Standards		***21st Century Skills***
• RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. • RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*. • RST.11-12.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved. • RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. • RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. • RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.		• *reason effectively* • *use systems thinking* • *make judgments and decisions* • *solve problems* • *communicate clearly*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Probability, Statistics & Trigonometry: Matrices

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to apply matrices to solve problems in a variety of contexts.***
- ***Students will demonstrate the ability to use mathematics to model real world problems by building and analyzing the appropriate expression, equation, or function.***
- ***Students will demonstrate the ability to graph functions by using tables and analyzing equations.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- HSN.VM.C.6 (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
- HSN.VM.C.7 (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.
- HSN.VM.C.8 (+) Add, subtract, and multiply matrices of appropriate dimensions.
- HSN.VM.C.9 (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.
- HSN.VM.C.10 (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.
- MP4 Model with mathematics.
- MP5 Use appropriate tools strategically.
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

Transfer

Students will be able to independently use their learning to ***maximize or minimize a problem's solution given a set of restrictions.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- matrices allow them to find solutions to problems without using variables.

ESSENTIAL QUESTIONS

- How can we make the best decisions given a restrictive situation?

Acquisition

Students will know…

- *systems with no solution can always be detected by the presence of a matrix row of the form [0 0 ..|a], where a is a nonzero number*
- *in order to add or subtract matrices, they must have the same dimensions*
- *in order to multiply matrices, the columns of the first must be the same as the rows of the second*
- *multiplication of matrices is not commutative*
- *not all square matrices have inverses*
- *an input-output matrix is summarized the interdependence among the industries of the economy*

vocabulary: elementary row operations, matrix, pivoting; row, column, & square matrices; entries, coefficient matrix, scalar product, identity matrix, inverse of a matrix, final demand, production amounts, linear programming, optimal point, transpose

Students will be skilled at…

- *solve systems of equations using the Gauss-Jordan elimination method.*
- *using a graphing calculator to solve systems using matrices.*
- *pivoting a matrix around a given nonzero entry.*
- *adding, multiplying, and subtracting matrices by hand and with a graphing calculator.*
- *performing scalar multiplication.*
- *finding the inverse of a matrix using Gauss-Jordan and with a calculator.*
- *solving a matrix equation.*
- *using a matrix inverse to solve a system of equations.*
- *performing input-output analysis using matrix.*

Content Area Literacy Standards	*21st Century Skills*

● RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. ● RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9-10 texts and topics*. ● RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.	● *reason effectively* ● *use systems thinking* ● *solve problems* ● *access and evaluate information* ● *use and manage information* ● *be self-directed learners*

Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Summary of Key Learning Events and Instruction

Science Integration	***College, Career, and Civic Life Integration***	***Technology Integration***
District Materials	***Distance Learning/Field Trips***	***Technology Resources***

Probability, Statistics & Trigonometry: Sequences and Series

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to apply functions to solve problems in a variety of contexts by interpreting and analyzing multiple representations of functions.***
- ***Students will demonstrate the ability to use mathematics to model real world problems by building and analyzing the appropriate expression, equation, or function.***
- ***Students will demonstrate the ability to graph functions by using tables and analyzing equations.***
- ***Students will demonstrate the ability to use mathematical reasoning in order to comprehend and construct mathematical arguments.***
- ***Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.***
- ***Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.***
- ***Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.***

Content Standards:

- A.SSE.A.1.A Interpret parts of an expression, such as terms, factors, and coefficients.
- F.IF.C.8.B Use the properties of exponents to interpret expressions for exponential functions.
- F.BF.A.1.A Determine an explicit expression, a recursive process, or steps for calculation from a context.
- F.BF.A.1.B Combine standard function types using arithmetic operations.
- A.SSE.B.4 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.
- MP2 Reason abstractly and quantitatively.
- MP4 Model with mathematics.
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

Transfer

*Students will be able to independently use their learning to **make informed decisions based upon their understanding of the patterns of numbers.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- a constant increase or decrease applied at regular intervals always results in a linear relationship between two quantities.
- a constant percent increase or decrease applied at regular intervals always results in an exponential relationship between two quantities.

ESSENTIAL QUESTIONS

- How do different factors alter an outcome?

Acquisition

Students will know…

- *the recursive rule for an arithmetic sequence.*
- *the recursive rule for geometric sequence.*
- $a_n = a_1 + (n-1)d$.
- $a_n = a_1 r^{n-1}$.
- *the formula for geometric mean.*
- *summation notation.*

vocabulary: arithmetic sequence, arithmetic series, geometric sequence, geometric series, geometric mean

Students will be skilled at…

- *writing recursive and explicit formulas for arithmetic sequences.*
- *calculating the sum of the first n terms of an arithmetic series.*
- *writing recursive and explicit formulas for geometric sequences.*
- *calculating the sum of the first n terms of a geometric series.*
- *calculating the sum of an infinite geometric series*
- *using induction to prove statements.*

Content Area Literacy Standards		***21st Century Skills***
• RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. • RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. • RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*.		• *reason effectively* • *use systems thinking* • *apply technology effectively* • *make judgments and decisions* • *solve problems* • *access and evaluate information*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

Probability, Statistics & Trigonometry: Logic

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- Students will demonstrate the ability to use mathematical reasoning in order to comprehend and construct mathematical arguments.
- Students will demonstrate the ability to use mathematics to model real world problems by building and analyzing the appropriate expression, equation, or function.
- Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline specific materials.
- Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. meaning of discipline-specific materials.
- Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.

Content Standards:

- A.SSE.A.1.A Interpret parts of an expression, such as terms, factors, and coefficients.
- F.IF.C.8.B Use the properties of exponents to interpret expressions for exponential functions.
- F.BF.A.1.A Determine an explicit expression, a recursive process, or steps for calculation from a context.
- a tᴍ a l·⎤Ŝ ăŜyãŝ 2Ŧ LJN2ōfŜY˘ă l·yŘ LJŜN̈ăŜØŜN̈Ŝ ʎy˘ă2ťØʎyƎ úKŜY˚
- MP2 Reason abstractly and quantitatively.
- a to /2yãúN̈dzÔǔ ØʎI·ōfŜ I·N̈ƎdzY˘Ŝyúă l·yŘ ÔN̈AúʎIJdzŜ úKŜ N̈ŜI·ă2yʎyƎ 2Ŧ 2úKŜN̈ă˚
- MP4 Model with mathematics.
- a tp ¦ ăŜ I·LJLJN̈2LJNA I·úŜ ú22fă ăúN̈I·úŜƎʎÕI·ffê˚
- a tc ! úúŜyŘ ú2 LJN̈ŜÔʎăʎ2y˚
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

Transfer

*Students will be able to independently use their learning to **make informed decisions based upon their understanding of the rules of Logic.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that…

- The study of logic forms the underlying basis for many things we use every day, including our smartphones, computers, cars and all other technology involving programmming.

ESSENTIAL QUESTIONS

- How can the study of Logics be used to assess if someone is making a valid or invalid argument?
- Why is the language of Logic so important when making a valid argument?

Acquisition

Students will know…

- *The rules of logic give precise meaning to mathematical statements and are used to distinguish between valid and invalid arguments.*
- *Predicate logic can be used to express the meaning of a wide range of statements in mathematics and computer science in ways that permit us to reason and explore relationships between objects.*
- *Existential, universal, and nested quantifiers can be used to represent mathematical statements and can be used to translate English sentences into mathematical statements.*

vocabulary: logic statements, connectives, truth tables, logical equivalence, contradictions, conditional statements, converse, inverse, contrapositive, arguments, logic circuits, DeMorgan's Law

Students will be skilled at…

- *creating and understanding logic statements and connectives.*
- *translating to and from symbolic notation.*
- *reading and writing truth tables.*
- *understanding logical equivalence.*
- *constructing tautologies and contradictions.*
- *writing and interpreting conditional statements and their negations.*
- *understanding and writing biconditionals.*
- *distinguishing between valid and invalid arguments.*
- *understanding logic circuits.*
- *understanding and interpreting quantifiers and their negations.*
- *analyzing mathematical statements using propositional and predicate logic.*
- *applying propositional logic to translations of English sentences and to Boolean searches, logic puzzles, and logic circuits.*
  analyzing and constructing tautologies and contradictions.
- *applying the rules of inferences in propositional logic and for quantified statements in order to produce valid argument.*

Content Area Literacy Standards		***21st Century Skills***
• RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. • RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. • RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*.		• *reason effectively* • *use systems thinking* • *apply technology effectively* • *make judgments and decisions* • *solve problems* • *access and evaluate information*

Stage 2 - Evidence	
Evaluative Criteria	***Assessment Evidence***
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	***Mathematics Integration***
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	***District Materials***
• 1.OA.1 Use	

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TRSD POLICY COMMITTEE'S RECOMMENDATIONS TO THE SCHOOL BOARD

September 21, 2023

First Read

Policy	Changes/Recommendations
FEH – Supervision of Construction	Added Section D.
GDR – Work Rules for Staff	Recommended to repeal. Obsolete.
BEDG - Minutes	Replaced with NHSBA's policy which reflects 2021 amendments to RSA 91-A:3.
IHBA – Programs for Pupils with Disabilities	New language added in the last paragraph to relect 2022's SB 394 and HB 1513 language.
IC/ICA – School Year and School Year Calendar	Replace TRSD's policy with NHSBA's policy and withdraw ICA.

Second Read/Adoption

Policy	Changes/Recommendations
IIB – Class Size	Change since first read: "Paraprofessional" to "support". Mrs. Allaire to discuss the staffing and financial impacts if this policy is revised/adopted.
IKFC - Graduation of Home Education Students	No changes since first read. Recommended to repeal. This policy is obsolete based on the existence of IHBG which was revised in 2022.
IHBG – Home Education Instruction	No changes since first read.
JICD – Student Discipline and Due Process	No changes since first read. Removal of requiring a 24-hour notice to parents of temporary reassignment or detention.

Timberlane Regional School District	Policy Code: FEH
Adopted: 12-03-98 Revised: 02-16-12	Page 1 of 1

SUPERVISION OF CONSTRUCTION
CLERK OF THE WORKS / PROJECT MANAGER

A. ***Subject to the provisions of paragraph D, below for projects over $1,000,000,*** the Board may employ a Clerk of the Works who shall be directly responsible to the Board for review of the architect and contractor's activities in his/her supervision of building construction. This review shall include adequacy of field inspection of the contractor's operations, administrative activities of the architect relating to construction, and any other matters relating to the interest of the District. The ***Clerk*** shall make periodic reports certifying by his/her personal knowledge that the work of the construction contractor and the architect is being performed in accordance with plans, specifications, and contracts.

B. Change orders will be recommended by the Clerk of the Works to the Superintendent who will determine whether or not it is a matter for Board consideration. If the Superintendent decides Board consideration is not necessary, then the signature of the Superintendent shall be considered Board action. The Superintendent will develop a procedure to use relative to the need for the School Board review of change orders.

C. Upon completion of building construction and after a final inspection of all its aspects by the design professional, contractors, and school officials, a recommendation for its acceptance will be made to the Board by the design professional and the Clerk of the Works.

D. ***For construction or reconstruction projects of $1,000,000 or more, the Clerk of the Works must hold the qualifications and title, and perform the services and responsibilities of a "Project Manager" as determined by the New Hampshire Department of Education, in addition to all of the responsibilities of the Clerk of the Works as outline in this policy. Additionally, the Project Manager shall hold his or her own comprehensive liability and auto insurance, worker's compensation coverage, and professional liability coverage.***

Timberlane Regional School District	Policy Code: GDR
Adopted: 06-09-83 **Revised: 04-04-91** **Revised: 02-24-05**	**Page 1 of 1**

WORK RULES FOR STAFF

~~District employees are required to fulfill the responsibilities set forth in their contract, in other policies established by the School Board, and in regulations established by the employee's principal. A copy of the School Board Policy Handbook will be provided in each school principal's office, school board member, town public libraries, and the SAU office. Regulations established by each principal will be distributed to the employees in their respective buildings.~~

Policy GDR was repealed by the Timberlane Regional School Board on _____.

Timberlane Regional School Board	Policy Code: BEDG
Adopted: 04-21-83 **Revised:** 11-20-86 **Revised:** 11-01-90 **Revised:** 12-03-98 **Revised:** 09-20-01 **Revised:** 09-15-11 **Revised:** 01-07-21	**Page 1 of 7**

MINUTES

Related Policies: BEA, BEC

A. Minutes Required.

Under RSA 91-A, the school board, and each of the school board's committees (irrespective of whether standing or ad hoc, and irrespective of whether deemed a sub-committee or an advisory committee~~s~~) is required to keep minutes for every "meeting" as defined under 91-A:2, I. As used below, "Board" shall mean and include the district school board, and each such board committee.

The Board will appoint a "minute taker" to prepare the minutes of each meeting. Should the person so appointed be absent from all or part of a meeting (e.g., non- public session), the Chair, subject to being overruled by the Board, shall appoint a person to take the minutes.

In addition to "minutes" as described below, a more comprehensive "record" and/or "decision" may be required in the event of a "hearing" regarding individual rights/claims (e.g., teacher non- renewal, student expulsion, manifest educational hardship, etc.). In such instances, the Board and or Superintendent should consult with counsel to assure that any statutory or regulatory requirements are satisfied.

~~The Board will keep a record of the actions taken at Board meetings in the form of minutes.~~

B. Required Content of Minutes.

At a minimum, all minutes, ~~public and non public, shall include~~ including minutes of non-public sessions, must include:

1. the names of members participating;
2. persons appearing before or addressing the School Board ~~(any persons other than board members who address the board or speak at the meeting~~ (members of the public who do not address the board, and are there as attendees only, do not need to be identified);
3. a brief description of each subject matter discussed;
4. identification of each member who made a first or second of any motion;
5. a record of all final decisions;

6. when a recorded or roll call vote on a motion is required by law or called for by the Chair (or other presiding officer), a record of how each board member voted on the motion; and

7. in the event that a board member objects to the subject matter discussed by the board, if the board continues the discussion above the member's objection, and upon the request of the objecting member, then - and irrespective of whether the objection/discussion occurred in public or non-public session - the public minutes shall also reflect (i) the objecting member's name, (ii) a statement that the member objected, and (iii) a "reference to the provision of RSA 91-A:3, II that was the basis for the objection and discussion." (See RSA 91-A:2, II-a.).

~~Copies of the draft minutes of a meeting will be sent to the members of the Board before the meeting at which they are to be approved. The preceding sentence, however, shall not apply to minutes of non-public sessions when the Board has sealed such minutes by a recorded roll call vote taken in public session with 2/3 of the board members present supporting the motion. Drafts of non-public minutes will be provided to the Board either at the conclusion of the non-public session and may be approved at the time - prior to any vote to seal, or if sealed, provided to Board at the meeting at which they are to be approved.~~

~~Draft minutes of all public meetings, clearly marked as drafts or "unapproved", will be made available for public inspection upon request no later than five (5) business days after each public session. Minutes for non-public sessions shall be kept as a separate document. Draft minutes for all non-public sessions, will be made available for public inspection within seventy-two (72) hours after the non-public session, unless sealed in accordance with the statutory procedure described in the preceding paragraph.~~

~~Notes and other materials used in the preparation of the minutes must be retained until the minutes are approved or finalized and shall likewise be available for inspection during that period.~~

~~All minutes, including draft minutes, will be kept in accordance with RSA 91-A:2 and RSA 91-A:3 and will be in the custody of the Superintendent.~~

~~Approved minutes, except those non-public session minutes which are sealed, shall be consistently posted on the District's web site in a reasonably accessible location or the web site shall contain a notice describing where the minutes may be reviewed and copies requested. Draft minutes will be available for inspection at the District's administrative office.~~

~~Sealed minutes shall be reviewed periodically and unsealed by majority vote of the Board if~~

~~the circumstances justifying sealing the minutes no longer apply. The Superintendent shall identify and bring to the Board's attention minutes which have been sealed because disclosure would render the proposed action ineffective where the action has been completed and the minutes no longer need to be sealed. The Superintendent will also identify any other sealed minutes where the justification for sealing no longer applies due to the passage of time. Generally, non-public session minutes are sealed because divulgence of the information would likely affect adversely the reputation of a person other than a member of the School Board, will remain sealed.~~

C. Approval and Access to Minutes.

Approval and availability of minutes will depend in part on whether the minutes are of a public or non-public session, and as to non-public minutes, whether they are sealed or not. "*Approved minutes*" refers to the final version of minutes approved by vote of the Board. "*Draft minutes*" refers to minutes that have not been formally approved by the Board. "*Sealed minutes"* refers to minutes from a non-public session and which the Board has determined should not be disclosed pursuant to RSA 91-A:3, III and as discussed in Section D, and paragraph C, below.

1. Location and Retention of Minutes. In accordance with N.H. Dept. of Education rule Ed 302.02 (j), all minutes will be kept at the office of the Superintendent. Minutes for non-public sessions that have not been sealed shall be kept in the same location and indexed in the same manner as for public minutes.

2. Access to Approved & Unsealed Minutes. Approved and unsealed minutes shall be available for inspection by the public during the normal business hours of the SAU office, and in accordance with RSA 91-A:2 through 91-A:4 (subject to the exemptions stated in RSA 91- A:5). Requests for access to minutes shall be processed in accordance with District administrative procedures EH-R.

   Additionally, all approved and unsealed minutes shall be posted in a consistent and reasonably accessible location on the District's web site, or the web site shall contain a notice describing where the minutes may be reviewed, and copies requested.

3. Access to Draft Minutes and Minute Preparation Materials. "Draft" or "unapproved" minutes that have not been sealed will be available for inspection upon request at the SAU office during normal business hours. Drafts for public sessions must be available within 5 business days of the meeting, while drafts of non-public session minutes that

have not been sealed by the Board must be available within 72 hours (3 calendar days) of the meeting.

Notes and other materials used in the preparation of the minutes must be retained until the minutes are approved or finalized and shall likewise be available for inspection during that period.

4. Approval of All Minutes Other Than Sealed. Draft public minutes and non-public minutes that were not sealed will be sent to the members of the Board before the meeting at which they are to be approved. Changes made by the Board to draft minutes shall be recorded either by (i) retaining the draft with the final approved minutes, (ii) including notations (e.g., "redline" edits) in the final approved minutes, or (iii) outlined in the minutes of the meeting at which the Board approved.

5. Approval of Sealed Non-Public Minutes of Non-Public Sessions. Unless previously sealed by the Board, draft minutes for all non-public sessions will be made available for public inspection within seventy-two (72) hours after the non-public session.

   Drafts of non-public minutes will be provided to the Board, either (i) at the conclusion of the non-public session and may be approved at the time, prior to any vote to seal, or (ii) if sealed, provided to Board at the meeting, if any, at which they are to be approved. If copies of draft sealed minutes are provided to Board members for the purpose of review and/or approval, the copies shall be recovered by the Chair or minute taker and destroyed. Only the official record copy may be retained, with a list maintained for sealed non-public minutes as described in Section D, below.

D. Special Provisions for Minutes Relating to Non-Public Sessions.

For any public meeting that includes a non-public session (see Board policy BEC for statutorily required procedures relative to entering and exiting non-public sessions), additional information beyond that discussed in paragraphs B.1-7, is required both for the public meeting minutes, and for minutes specific to the non-public session, irrespective of whether the non- public minutes are "sealed" (see discussion in Section D.2 , below).

1. Information Regarding Non-Public Session Included in Public Minutes. The public minutes of the meeting at which the non-public session occurs must include the statutory reason given in the motion as the foundation for each non-public session, as well as a roll call record of how each Board member voted on the motion to enter. Public minutes must also reflect any motion to seal (described in paragraph C.2.,

above), along with the statutory reason permitting the sealing (see D.2, below), and record how each member voted on the motion to seal.

2. Sealing Non-Public Minutes. As used in this policy, "sealed" minutes in reference to minutes of non-public sessions, means that the Board determined by 2/3 majority vote in public session that "divulgence of the information" (i.e., information in the minutes of the non- public session):

    i. Would affect adversely the reputation of a person other than a Board member;

    ii. Would render ineffective the action/proposed action taken in non-public session; or

    iii. Pertains matters relating the preparation for and carrying out of all emergency functions intended to thwart a deliberate act intended to result in widespread or severe damage to property or widespread injury or loss of life (i.e., terrorism).

    a. A motion to seal, if any, should be the first item of public business after the Board exits the non-public session, and must state one of the three grounds above allowing sealing.

    b. If the minutes are not prepared/approved during the non-public sessions itself, the Board should discuss the content of the minutes prior to exiting so that any vote to seal will be an informed vote.

    c. When making or voting upon a motion to seal, the movant/Board should consider and state the duration that minutes be sealed based upon the grounds supporting the sealing. *This can be done either by stating a date they sealed until, or a date by which the Board might review the minutes status.* For instance, minutes sealed because divulgence of the information would likely affect adversely the reputation of a person other than a member of the Board might be remain sealed permanently, while minutes sealed because disclosure would "render the action ineffective" should be sealed only for as long as that reason exists or is anticipated to exist. *Pursuant to RSA 91-A:3, III, non-public minutes relating to discussion about lease, purchase or sale of property (91-A:3, II(d)) must be made available "as soon as practicable after the transaction has closed or the Board has decided not to proceed with the transaction."*

3. Minutes of the Non-Public Session Itself. In addition to the information included in all minutes as described in paragraphs B.1-7, above, minutes of the non-public session must include "all actions" and decisions (i.e., votes, including negative votes) taken by the Board, with a record of how each member voted. If the Board does not "seal" the minutes of the non-public session, then such information must be disclosed to the public within 72 hours of the close of the meeting.

4. Sealed Minutes List. In order to comply with RSA 91-A:3, III, the Superintendent is directed to maintain a list of all sealed minutes for non-public sessions occurring after July 1, 2021. The list (referred to as the "Sealed Minutes List") shall include:

    a. the name of the public body (e.g., School Board, Policy Committee, etc.);
    b. the date, time and location of the public meeting (from meeting notice);
    c. the start and end times of the non-public session;
    d. the specific grounds upon which the non-public session occurred (e.g., RSA 91-A:3, II (b) and (c), etc.);
    e. the specific grounds upon which the minutes were sealed (e.g., "disclosure would render the action ineffective" or "disclosure would likely adversely affect the reputation of a non-board member," etc.);
    f. the date the vote to seal the minutes occurred;
    g. the date, if any stated in the original motion or subsequently, on which the sealed minutes will be unsealed; the motion to seal should, when possible, state the date the minutes should be unsealed or at least reviewed by the Board or other public body; and
    h. the date, if any, of a subsequent decision to unseal the minutes.

    The Sealed Minutes List shall be updated each time the public body seals non-public minutes, and the updated List shall be made as soon as practicable for public disclosure.

5. Reviewing Sealed Minutes.
The Board may appoint a delegate the authority to review previously sealed minutes to one or more Board members, the Superintendent or other appropriate administrator.
Sealed minutes shall be reviewed periodically and unsealed by majority vote of the Board if the circumstances justifying sealing the minutes no longer apply. Although discussion of whether to unseal such minutes can occur in non-public session pursuant to RSA 91- A:3, II (m), any vote to unseal must occur in public session.

Legal References:

~~*RSA 91-A:2 II, Public Records and Meetings: Meetings Open to Public RSA 91-A:2 II-a,*~~
~~*RSA 91-A:3 III, Public Records and Meetings: Non-Public Sessions*~~
~~*RSA 91-A:4 I, Public Records and Meetings: Minutes and Records available for Public Inspection*~~

RSA 91-A:2, Meetings Open to Public

RSA 91-A:3, Nonpublic Sessions

RSA 91-A:4, Minutes and Records available for Public Inspection

RSA 189:29-a, Records Retention and Disposition

N.H. Dept. of Education regulation Ed 302.02 (j), Substantive Duties of Superintendents

Timberlane Regional School District	Policy Code: IHBA
Adopted: 09-20-01	Page 1 of 1

PROGRAMS FOR PUPILS WITH DISABILITIES

The District shall provide a free appropriate public education and necessary related services to all children with disabilities residing within the district, required under the Individuals With Disabilities Act (IDEA), Section 504 of the Rehabilitation Act of 1973, and the American With Disabilities Act.

It is the intent of the district to ensure that students who are disabled within the definition of Section 504 of the Rehabilitation Act of 1973 are identified, evaluated and provided with appropriate education services. Students may be disabled within the meaning of Section 504 of the Rehabilitation Act even though they do not require services pursuant to the IDEA.

For students eligible for services under IDEA, the district shall follow procedures for identification, evaluation placement, and delivery of services to children with disabilities provided in state statutes which govern special education. For those students who are not eligible for services under IDEA, but, because of disability as defined by Section 504 of the Rehabilitation Act of 1973, need or are believed to need special instruction or related services, the district shall establish and implement a system of procedural safeguards. The safeguards shall cover students' identification, evaluation, and educational placement. This system shall include notice, and opportunity for the student's parent(s)/guardian(s) to examine relevant records, and impartial hearing with opportunity for participation by the students' parent(s)/guardian(s), and representation by counsel, and review procedure.

The district recognizes its obligation to provide an education for all students determined to be educationally disabled and in need of special education and related services. This obligation shall begin when a student reaches three years of age and shall continue until the student's ***22nd*** birthday or until such time as he/she receives a high school diploma, whichever occurs first, or until the child's Individualized Education Program (IEP) Team determines that the child no longer requires special education in accordance with federal and state law. At the discretion of the Superintendent and/or his/her designee, students who reach the age of ***22*** during the academic year may be allowed to complete the remainder of the school year.

Statutory & Federal Reference:
20 USCA (1401 et seq.)
RSA 186-C

Timberlane Regional School District	Policy Code: IC~~/ICA~~
Adopted: 06-16-83 **Revised: 05-02-91** **Revised: 02-24-05** **Revised: 04-03-08** **Revised: 12-15-11** **Revised: 05-02-13**	**Page 1 of 3**

School Year / School Calendar

~~The school calendar will be developed by the Superintendent and approved by the Board. Any exceptions or revisions to the calendar must be approved in advance by the Board. The Superintendent shall ensure that the calendar conforms to the number of actual days of instruction and employment as required by law, board policy, and staff contracts.~~

~~To the extent possible, the calendar will be coordinated with the school calendars of the area vocational schools, regional special education programs, and other districts in the SAU.~~

~~The school year shall be a minimum of 190 days, including a minimum of 180 instructional days for students and additional days for the teaching staff, emergency days, etc.~~

~~Any days that the schools are closed for emergency reasons will be made up at the end of the school year, during recess periods or as otherwise approved by the Board upon the Superintendent's recommendation. Under special circumstances the Board may request an exception to this requirement from the State Board of Education.~~

~~Alternatively, the school year may consist of the number of hours as required by New Hampshire Department of Education Rules. In the event schools are closed for excessive days for emergency reasons, the Superintendent may recommend to the School Board a revised schedule that satisfies all Department of Education requirements, but which may amend the number of days in the school year.~~

~~***Legal Reference:***~~

~~*RSA 189:1, Days of School*~~
~~*RSA 189:24, Standard School*~~
~~*NH Code of Administrative Rules, Section Ed. 306.18*~~
~~*NH Code of Administrative Rules, Section Ed. 306.19*~~
~~*NH Code of Administrative Rules, Section Ed. 306.27*~~

A. School Year.

The student school year shall be a minimum of 180 instructional days or, alternatively, the equivalent number of hours as required in the rules of the N.H. Department of Education (see Ed 306.18).

The school year for teachers and other certified professionals shall be **187** days unless otherwise determined by the Board, applicable collective bargaining agreement, or individual contract.

The school year for support staff shall be **183** days unless otherwise determined by the Board, applicable collective bargaining agreement, or individual contract.

The school calendar will be established annually as described in paragraph D below.

B. School Closures.

Any days that the schools are closed for emergency reasons and are not designated by the Superintendent as distance education days (see paragraph C below) will be made up at the end of the school year or during recess periods, as approved by the Board upon the Superintendent's recommendation. Under special circumstances the Board may request an exception to this requirement from the State Board of Education.

In the event schools are closed for excessive days for emergency reasons, the Superintendent may recommend to the School Board a revised schedule that satisfies all Department of Education requirements, but which may amend the number of days in the school year.

C. Distance Education During Inclement Weather

If inclement weather makes it unsafe to safely transport students to or from in-person instruction, the Superintendent/designee is authorized to designate that day as a remote instruction or "distance learning". Before remote instruction/distance learning is used as instructional day for the purpose of satisfying the minimum instructional day/hour requirements of the N.H. Department of Education, the Superintendent shall ensure that a plan exists with procedures to promote and allow for participation by all students in any affected school.

Prior to approving designating a day as a remote instruction/distance learning day, or any school/district-wide distance education that is dependent on technology, the Superintendent/designee will consider the impact that the inclement weather event might have on necessary technology.

Distance education will only count toward required instructional days/time when conducted in accordance with N.H. Dept. of Education Rule Ed 306.22.

D. School Calendar.

The school calendar will be developed by the Superintendent and submitted to the Board by the **second School Board meeting in December**. The Board should approve the final calendar by the **first School Board meeting in January**. Any exceptions or revisions to the calendar thereafter must be approved in advance by the Board.

The Superintendent shall ensure that the calendar conforms to the number of actual days of instruction and employment as required by law, board policy, and staff contracts.

To the extent possible, the calendar will be coordinated with the school calendars of the area vocational schools, regional special education programs, and other districts in the SAU.

The high school graduation date shall be set no more than 5 school days or 30 instructional hours before the end of the scheduled school year. The date may remain fixed notwithstanding the need for other grades to make up days lost to inclement weather or other emergencies. See Ed 306.18(a)(4).

Legal References:

RSA 189:1, Days of School
RSA 189:24, Standard School
N.H. Dept. of Education Rules, Ed 306.18, School Year
N.H. Dept. of Education Rules, Ed 306.19, School Calendar
N.H. Dept. of Education Rules, Ed 306.22, Distance Education

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EXECUTIVE SUMMARY

Revisions to Policy IIB

Potential Impact to Staffing Levels

The proposed revisions to Policy IIB include a reduction of 1 in the maximum class size for grade levels 2-5:

Grade Span	Current Max. Class Size	Proposed Revision to Max. Class Size
2-3	23	22
4-5	26	25

The tables on the following pages include an overview of the potential impact of this reduction in maximum class size to current staffing levels.

Table A reflects the impact of these changes to current class sizes and staffing levels in accordance with elementary enrollment numbers as of September 14, 2023.

If implemented with our current enrollment numbers, the revisions to Policy IIB would result in an increase of 3.0 FTE positions in the following grade levels:

- Danville School, grade 2
- Danville School, grade 4
- Pollard School, grade 3

The following two grade levels would be “pressure points”, with 1 or 2 spots remaining before reaching maximum enrollment:

- Pollard School, grade 4
- Pollard School, grade 5

Table B reflects the potential impact of these policy revisions on projected 2024-2025 class sizes and staffing levels for grades 1-5. Preschool, Pre-K and Kindergarten enrollments have been removed from this projection, as we do not yet have accurate ‘24-‘25 enrollment numbers for these grade levels.

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If implemented in 2024-2025, the proposed revisions to Policy IIB could result in an increase of 3.0 FTE across grades 1-5 in the following grade levels:

- Atkinson Academy, grade 1
- Danville School, grade 5
- Pollard School, grade 3

The district may also be able to decrease class sections, however, based on projected '24-'25 enrollment, in the following grade levels:

- Danville School, grade 1 - *if reduced, this grade level would be identified as a pressure point with an average class size of 19.5/20 max.
- Sandown North, grade 2

The average annual cost for a full-time teacher position, including benefits, is $85,000. Overall, the potential impact on 2024-2025 elementary staffing for grades 1-5 could be a total of:

- 1.0 FTE / $85,000, if a position is removed from Danville School grade 1, or
- 2.0 FTE / $170,000, if the Danville grade 1 position is not removed.

It is important to note that these projections do not include enrollment for Preschool, Pre-K, and Kindergarten. These projections are based on September 2023 enrollment numbers and do not account for any additional potential enrollments or withdrawals prior to the start of the 2024-2025 school year.

Respectfully submitted,

Sandra Allaire, Acting Assistant Superintendent

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Table A: 2023-2024 Elementary Enrollment - Proposed Revisions to Policy IIB

	Enrollment	Max Class Size	Required Staff		Current Staff	Average Class Size	Actual Class Sizes	Change in FTE
Atkinson Academy								
Pre-K	25	17	1.47	1	1	12.5	15/10	
Half-Day K	17	20	0.85	0.5	0.5	17.0	17	
Full Day K	49	20	2.45	3	3	16.3	17/17/15	
1	53	20	2.65	3	3	17.7	18/17/18	
2	59	22	2.68	3	3	19.7	20/19/21	
3	60	22	2.73	3	3	20.0	20/19/21	
4	64	25	2.56	3	3	21.3	22/21/21	
5	58	25	2.32	3	3	19.3	18/19/21	
Danville School								
Pre-K	14	17	0.82	0.5	0.5	14.0	14	
Half-Day K	9	20	0.45	0.5	0.5	9.0	9	
Full Day K	30	20	1.50	2	2	15.0	14/16	
1	41	20	2.05	3	3	13.7	13/14/14	
2	45	22	2.05	3	2	22.5	22/23	1
3	48	22	2.18	3	3	16.0	16/16/16	
4	51	25	2.04	3	2	25.5	25/26	1
5	38	25	1.52	2	2	19.0	19/19	
Pollard School								
Pre-K	28	17	1.65	1	1	14.0	15/13	
Half-Day K	21	20	1.05	1	1	10.5	13/8	
Full Day K	53	20	2.65	3	3	17.7	18/18/17	
1	75	20	3.75	4	4	18.8	19/19/19/18	
2	84	22	3.82	4	4	21.0	21/22/19/22	
3	67	22	3.05	4	3	22.3	22/23/22	1
4	73	25	2.92	3	3	24.3	24/24/25	
5	74	25	2.96	3	3	24.7	25/25/24	
TLC / Sandown North								
Preschool	34	12	2.83	2	2	11.3	11/13/10	
Pre-K	36	17	2.12	1.5	2	12.0	13/12/11	
Half-Day K	16	20	0.80	1	1	16.0	16	
Full Day K	51	20	2.55	3	3	17.0	17/17/17	

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1	56	20	2.80	3	4	14.0	13/14/15/14	
2	76	22	3.45	4	4	19.0	19/19/18/19	
3	70	22	3.18	4	4	17.5	18/18/17/17	
4	64	25	2.56	3	3	21.3	22/22/19	
5	58	25	2.32	3	3	19.3	18/20/20	

Table B: 2024-2025 Projected 1-5 Elementary Enrollment - Proposed Revisions to Policy IIB

	Enrollment	Max Class Size	Required Staff		Current Staff	Average Class Size Required / CUrrent	Change in FTE
Atkinson Academy							
Pre-K		17			1		
Half-Day K		20			0.5		
Full Day K		20			3		
1	66	20	3.30	4	3	16.5/22	1
2	53	22	2.41	3	3	17.7	
3	59	22	2.68	3	3	19.7	
4	60	25	2.40	3	3	20	
5	64	25	2.56	3	3	21.3	
Danville School							
Pre-K		17			0.5		
Half-Day K		20			0.5		
Full Day K		20			2		
1	39	20	1.95	2	3	19.5 /13	-1
2	41	22	1.86	2	2	20.5	
3	45	22	2.05	3	3	15	
4	48	25	1.92	2	2	24	
5	51	25	2.04	3	2	17/25.5	1
Pollard School							
Pre-K		17		1	1		
Half-Day K		20		1	1		
Full Day K		20		3	3		
1	74	20	3.70	4	4	18.5	

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2	75	22	3.41	4	4	18.8	
3	84	22	3.82	4	3	21/28	1
4	67	25	2.68	3	3	22.3	
5	73	25	2.92	3	3	24.3	
TLC / Sandown North							
Preschool		12			2		
Pre-K		17			2		
Half-Day K		20			1		
Full Day K		20			3		
1	67	20	3.35	4	4	16.8	
2	56	22	2.55	3	4	18.7/14	-1
3	76	22	3.45	4	4	19	
4	70	25	2.80	3	3	23.3	
5	64	25	2.56	3	3	21.3	

Timberlane Regional School District	Policy Code: IIB
Adopted: 12-21-89 **Revised:** 11-19-92, 01-21-93, 07-15-93, 07-21-99, 02-24-05, 06-16-11	**Page 1 of 1**

CLASS SIZE

The Timberlane Regional School Board, in an effort to continue the pursuit of excellence in education already established and recognized, and to more effectively prepare our students, recommends the following class sizes for regular education classes."

Kindergarten and Grade 1 ..... Not to exceed 20
Grades 2 and 3 .....Not to exceed ~~23~~ 22
Grades 4 and 5 .....Not to exceed ~~26~~ 25
Grades 6 thru 12 .....Not to exceed 30

Class sizes as indicated above shall not be exceeded. No new staff will be added to accommodate classes of less than 9 students. Timeline:

Before ~~January 31~~ December 15: The administration will make recommendations to the School Board and Budget Committee at budget time on the number of teachers needed for the next school year based on October 1 enrollment numbers.

By February 1: The administration will establish a formal school registration period for new enrollees.

Beginning with the Second School Board Meeting in ~~June~~ March through August: The administration will present, at a minimum, monthly enrollment numbers, including staffing recommendations. ~~present preliminary September enrollment numbers to the School Board~~ with specific reference to enrollment pressure points.

~~Third Week in August: The administration will establish a formal school registration period for new enrollees.~~

~~Second School Board Meeting in August: The administration will present specific recommendations to the School Board for approval on the number of teachers and classrooms needed for September based on the administrative policy outlined above.~~

After Second School Board Meeting in August: If additional students enroll after the second meeting in August and class size policy is exceeded, the administration will seek the approval of the School Board to add ~~teacher assistant~~ ~~para professional~~ support ~~help equivalent to one hour per day for each child exceeding the guideline~~.

Timberlane Regional School District	Policy Code: IKFC
Adopted: 02-16-95 Reaffirmed: 02-24-05	Page 1 of 1

GRADUATION OF HOME EDUCATION STUDENTS

~~Under Ed 315.02 Procedures for the Operation of Home Education Programs and Chapter 193-A- Home Education, children between the ages of six (6) and sixteen (16) may be eligible for a home education program contingent upon the completion of the procedures specified in Ed 315. The School District accepts responsibility for those home education students who wish to enroll in Timberlane Regional High School at the age of sixteen (16) or at the beginning of the Junior year (11th Grade) whichever comes first and who have followed the matriculation process for home educated students.~~

~~The Timberlane Regional School Board does not accept responsibility for the home education programs of students after the age of sixteen (16).~~

~~***Appendix IKFC-R***~~

Policy IKFC was repealed by the Timberlane Regional School Board on _____.

Timberlane Regional School District	Policy Code: IHBG
Adopted: 05-04-95 **Revised: 02-24-05** **Revised: 10-06-22**	**Page 1 of 4**

HOME EDUCATION INSTRUCTION

Home Education is an alternative to compulsory attendance at a public or private school and is an individualized form of instruction in accordance with New Hampshire RSA 193-A and Department of Education Rule Part 315 (Ed 315). Parents or guardians may establish a home education program for any child, including one who is an "educationally disabled child" as defined under RSA 186-C:2, I, whether or not such child is previously enrolled in a school of the District. When and how parents/guardians determine to commence a home education program, and other choices the parents/guardians make, determine whether and the extent to which the District will have responsibilities relative to the home educated child(ren).

This policy is intended to help District personnel and home education families within the District understand those responsibilities based upon the family's choices. Nothing in this policy, however, should be understood to infringe upon the parent's/guardian's right under the applicable statutes or Department of Education rules.

A. **Parent/Guardian Selection of a Participating Agency.**

1. Selection of a Participating Agency. One of the most significant decisions the parents/guardians make relative to a home education program is the selection of a "participating agency" for home education program notification and support. This decision will also largely govern the District's obligations during the home education program.

   The parent/guardian decides which participating agency to select, from the following:

   a. The Commissioner of the Department of Education;

   b. The resident district Superintendent ("District"); or

   c. The head of a nonpublic school.

   The selected participating agency shall work with the parents/guardians upon request to meet the essential requirements of a home education program as set out in RSA 193-A:4, I.

2. Changing Participating Agency. At any time, the parents/guardians may select a different, valid, participating agency. To do so, the parents/guardians must provide notice to the new participating agency in the same manner as outlined in Section B.2, below.

3. District Obligations Relative to Selection of Participating Agency. If the selected participating agency is the resident district Superintendent, the District shall provide evaluation services as discussed in Section C, below. If the resident district Superintendent is *not* selected as the participating agency, the District may, but is not obligated to, provide evaluation services. However, the District shall, **"**work with parents ***upon request*** to meet the requirements of [RSA 193-A:4]. (See RSA 193-A:4, II, emphasis added.)

B. **Notices for Commencement of Home Education Program.**

1. Notice For Students Withdrawing from District. State school attendance laws apply to each student unless and until a parent/guardian commences a home education program. Similarly, the District's attendance policies apply to all students enrolled in schools of the District.

   Accordingly, when a parent/guardian of a child who is enrolled in a school of the District wishes to begin a home education program for the child, Ed Rule 315.05 (b) requires that on or before the date home education program begins, the parent/guardian must advise the Superintendent of the child's withdrawal from the District. The notice of withdrawal ~~may~~ must be made in ~~person, via telephone, email or other~~ writing~~, at~~ by the parent/guardian~~'s election~~.

2. Written Notice of Program Required. In addition to the less formal notice required for a child being withdrawn from the District, RSA 193-A and Ed 315 both require that the parent/guardian provide written notice of the commencement of a home education program to the selected participating agency. ***The District only receives this notice if the parents/guardians are selecting the Superintendent as the participating agency.***

   The only information required in this written notice of commencement is listed in RSA 193-A:5, II: the names, addresses, and birth dates of all children who are participating in the home education program. The parents/guardians shall also provide contact information and update the notification information as necessary. If selected by the parents/guardians as the participating agency, the Superintendent of the resident district shall acknowledge receipt of the notification of commencement of home education within 14 days of receiving such notification, along with a request for any information required by RSA 193-A:5, II that was not included in the original notice.

3. No Annual Notice Required. Once established, the home education program remains in effect unless terminated pursuant Ed 315.06. The parent/guardian is ***not*** required to provide annual notification of continuation of a home education program.

C. **Evaluation & Assessment.**

Under RSA 193-A:6, II, parents/guardians are required to provide for an annual educational evaluation for home educated children that documents "educational progress at a level commensurate with the child's age and ability." Both the statute and Ed 315.08 provide several options for parents/guardians to meet the statutory evaluation requirements, and the parents/guardians are free to select their preferred method.

1. Evaluation with Assistance from the District. If the District is selected as the participating agency, the District must provide evaluation services upon request of the parent/guardian. If the District is not selected as the participating agency, the District ***may*** aid in evaluation, but is not required to do so.

   Parents/guardians seeking to utilize evaluation services through the District should contact the Superintendent's office as soon as practicable to ensure adequate time to prepare any necessary materials and accommodations.

While the parent/guardian may select any evaluation method outlined in RSA 193-A:6, II, as well as any other method agreed to by the parent/guardian and the participating agency, two methods merit further note:

a. State or Local Assessment Provided by the District. If the evaluation method is a state or local assessment provided by the District, the parent/guardian must notify the Superintendent in writing as soon as practicable to provide the District adequate time to prepare and obtain the testing materials and prepare any necessary accommodations. Under this election, the District will not charge a fee for providing or administering the test. Reasonable academic proficiency is deemed demonstrated if the composite results place the child at or above the fortieth percentile.

b. Portfolio Review. If the District is the selected participating agency, the parent/guardian may request the District to perform a portfolio review, for which the District may charge a fee.

c. Other "Valid Measurement Tool". When the Superintendent is the participating agency, the parent/guardian and Superintendent may mutually agree upon any other valid measurement tool(s). A non-exclusive list of examples may be found in Ed 315.08(e).

2. Evaluation Independent of the District. As outlined in RSA 193-A:6, II, the parent/guardian may collaborate with the participating agency to find a mutually agreed upon method of evaluation as described in Ed 315.08(d) - (f).

D. **Reports and Records.**

1. Parent/Guardian Requirements. RSA 193-A:6, I requires the parent/guardian to maintain a portfolio of records and materials relative to the home education program. The portfolio shall consist of a log which designates by title the reading materials used, and also samples of writings, worksheets, workbooks, or creative materials used or developed by the child. Such portfolio, ***which at all times remains the property of the parent***, shall be preserved by the parent for 2 years from the date of the ending of the instruction.

Parents/guardians need only provide the evaluation results/portfolio to the District to the extent necessary to demonstrate proficiency in order to participate in school programs, and co/extra-curricular activities as provided under RSA 193-A:6, III, and Ed 315.07(b). See also Board policy JJJ.

2. District Requirements.

a. District as Participating Agency. On October 1 of each year, the Superintendent shall notify the Commissioner of the number of children for whom the Superintendent was selected as a participating agency since the previous year's report.

The District should maintain record of a student's enrollment and withdrawal from the school in the same manner as it would for a student transferring to another district. The District should maintain a record of its status as the participating agency for as long as it holds that status. While the parent/guardian keeps any portfolios and assessments conducted outside the District, the District should maintain record of any involvement it has in assessments as it would for any other student.

b. District Not as Participating Agency. The District should maintain record of the student's enrollment and withdrawal from the school in the same manner as it would for a student transferring to another district.

E. **Re-enrollment into School District & Notice of Termination of Home Education Program.**

Parents deciding to re-enroll their children into the School District following a period of home education will make arrangements with the Principal for an evaluation to determine appropriate placement in the District's program. Placements will be consistent with section B of Board policy JJJ governing home education and other non-enrolled district student program placements, and are subject to the same appeal process.

Parents should be attentive that when re-enrolling a student, there may be discrepancies between the home education level of achievement and the scope and sequence of the District's curriculum.

Also, in the event that a parent/guardian terminates a home education program, the parent/guardian is required under RSA 193-A:5, III to provide written notice within 15 days of the termination to ***either*** the N.H. Commissioner of Education, the resident district superintendent, ***or*** the non-public school principal.

F. **Graduation/Diplomas.**

The School Board will not award certificates or diplomas to home educated students. Students must enter the regular school program and complete all necessary graduation requirements of the District and the state to be eligible for a certificate or diploma.

G. **Participation in School Curricular and Co/Extra-curricular Activities.**

Information regarding the participation of home education students (as well as students of nonpublic or of public charter schools) in District curricular and co/extra-curricular programs is found in Board policy JJJ.

Legal References:

RSA 193-A, Home Education

RSA 193:1, Duty of Parent; Compulsory Attendance by Pupil

RSA 193:1-a, Dual Enrollment

RSA 193:1-c, Access to Public School Programs by Nonpublic or Home Educated Pupils

NH Dept. of Education Rules, Section Ed 315, Procedures for the Operation of Home Education Programs

Timberlane Regional School District	Policy Code: JICD
Adopted: 02-24-05 **Revised: 01-03-08** **Revised: 09-02-10** **Revised: 12-15-11** **Revised: 04-03-14** **Revised: 02-15-18** **Revised: 06-03-21** **Revised: 10-06-22**	**Page 1 of 9**

STUDENT DISCIPLINE AND DUE PROCESS

Related Policies: ADC, JI, JIC, JICF, JICFA, JICH, JICI, JICK

A. Policy Statement.

This policy establishes the substantive parameters, procedures and due process that shall apply before a student may be subject to temporary (same day) removal from classrooms or activities, restriction from activities, detentions, suspensions and/or expulsion. Pursuant to Board policy JIC, response to misconduct, including disciplinary measures and consequences should be designed to maximize student academic, emotional and social success, while at the same time assuring safety of all students, staff and school visitors. Administration of any of the consequences described in this policy shall be consistent with the system of supports and graduated sanctions established pursuant to Policy JIC and the applicable Code of Conduct.

B. Standards and Procedures Relative to Disciplinary Consequences.

1. **"Removal from the classroom"** means a student is sent to the building Principal's office or other designated area during the same school day. It is within the discretion of the person in charge of the classroom or activity to remove the student.

   Students may be removed from the classroom at the classroom teacher's discretion if the student refuses to obey the teacher's directives, becomes disruptive, fails to abide by school or District rules, or the Code of Conduct, or otherwise impedes the educational purpose of the class. Before ordering the removal, the staff member ordering the removal shall warn the student of the infraction and allow the student to respond.

   Detentions are not appealable.

2. **"Restriction from school activities"** means a student will attend school, classes, but will not participate in other school extra-curricular activities, including such things as competitions, field trips, and performances. A student who has been restricted from school activities may participate in practices at the discretion of the person imposing the restriction.

Before ordering the restriction, the supervising employee (e.g., teacher, coach, director, Principal, etc.) ordering the restriction shall warn the student of the infraction and allow the student to respond. If the restriction is immediate and outside of school hours, provision must be made to assure the student is not left unsupervised. The terms of the restriction shall be communicated to the Principal and the student's parent/guardian.

Restrictions under this policy are not appealable.

3. **"Detention"** means the student's presence is required for disciplinary purposes before or after the hours when the student is assigned to be in class, and may occur on one or more Saturdays.

   Students may be assigned classroom detention at the classroom teacher's discretion, and building detention at the Principal's discretion, if the student refuses to obey the teacher/employee's directives, becomes disruptive, fails to abide by printed classroom, school or District rules, or the Code of Conduct, or otherwise impedes the educational purpose of the class. Before ordering the detention, the staff member ordering the detention shall warn the student of the infraction and allow the student to respond. ~~Parents/guardians shall be notified at least 24 hours prior to a student serving detention.~~

   Detentions before or after school shall not exceed one hour, and Saturday detentions shall not exceed three hours. The building Principal is authorized to establish, announce and post additional guidelines and rules regarding detention, supervision, building access, etc. The length and timing of the detention, is within the discretion of the licensed employee disciplining the student or the building Principal, pursuant to the posted rules of the school.

   Detentions are not appealable.

4. **"Temporary Reassignment"** or "in-school suspension" means the student will attend school but will be temporarily isolated from one or more classes while under supervision. A temporary reassignment should not exceed five consecutive school days. ~~Parents/guardians shall be notified at least 24 hours prior to the administration of a temporary reassignment.~~

   The building Principal is authorized to issue reassignment, restrictions from activities, or place a student on probation for repeated failure to conform to the

Code of Conduct, classroom rules, or for any conduct that causes material or substantial disruption to the school/class environment, interferes with the rights of others, presents a threat to the health and safety of students, employees, and visitors, is otherwise inappropriate, or is prohibited by law.

5. **"Probation"** means a student is given a conditional suspension of a penalty for a definite period of time in addition to being reprimanded. The conditional suspension will mean the student must meet the conditions and terms for the suspension of the penalty. Failure of the student to meet these conditions and terms will result in reinstatement of the penalty. Notwithstanding the assignment of probation, no imposition of the suspended consequence may be administered unless and until all of the provisions of this policy applicable to the suspended consequence (i.e., long-term suspension, expulsion, etc.) are satisfied.

6. **"Out-of-school suspension"** means the temporary denial of a student's attendance at school for a specific period of time. It includes short-term and long-term out of school suspensions.

   a. Short-term suspension. A "short-term suspension" means an out-of-school suspension of ten (10) consecutive school days or less. RSA 193:13, I (a).

      The Superintendent or his/her written designee is authorized to suspend a student for ten (10) school days or less.

      A short term suspension may be imposed only for:

      i. Behavior that is detrimental to the health, safety, or welfare of pupils or school personnel (including, but not limited to, and act of theft, destruction or violence, as defined in RSA 193-D:1); or

      ii. Repeated and willful disregard of the reasonable rules of the school that is not remediated through imposition of the district's graduated sanctions described in JIC and the Code of Conduct.

      Pursuant to RSA 193:13, XI(b) and Board policy JIC, a short-suspension over 5 days must conform to the standards included in the Code of Conduct.

Before any short-term suspension may be imposed, a student is entitled to the minimum due process (notice before meeting of the charge and explanation of evidence, notice of the possibility of suspension, opportunity for the student to respond, and a written decision explaining the disciplinary taken). See New Hampshire Department of Education Rule Ed 317.04(f)(1).

b. Long-term suspension. A "long-term suspension" is the extension or continuation of a short-term suspension for a period **not to exceed an additional 10 days** beyond the duration of the short-term suspension.

The Superintendent is authorized to continue the suspension and issue a long-term suspension of a pupil for a period in excess of ten (10) school days, provided only that if the Superintendent issued the original short-term suspension, then the School Board may designate another person to continue the short-term suspension and issue the long-term suspension.

A long-term suspension may only be imposed for:

i. an act that constitutes an act of theft, destruction or violence, as defined in RSA 193-D;

ii. bullying pursuant to Board policy JICK when the pupil has not responded to targeted interventions **and** poses an ongoing threat to the safety or welfare of another student; or

iii. possession of a firearm, BB gun, or paintball gun.

Prior to a long-term suspension, the student will be afforded a hearing on the matter. The informal hearing need not rise to the level and protocol of a formal hearing, but **the process must comply with the requirements of Ed 317.04 (f)(2), and (f)(3)(g)**, including, without limitation, the requirements for advance notice and a written decision.

c. Appeal of long-term suspension. Any long-term suspension issued other than by the School Board under this policy, is appealable to the School Board, provided the Superintendent or School Board chair receives the appeal in writing within ten (10) days after the issuance of the Superintendent's *[or other person designated under B.6.b, above]* hearing and written decision required under N.H.

Dept. of Education Rule Ed. 317.04 (f)(2)c, and sub-paragraph B.6.b, above. The Board shall hold a hearing on the appeal, but will rely upon the record of the decision being appealed from.

Any suspension in excess of ten (10) school days shall remain in effect while this appeal is pending unless the School Board stays the suspension while the appeal is pending. Any request to stay a long-term suspension should be included in the original appeal.

d. Educational Assignments. As required by RSA 193:13, V, educational assignments shall be made available to students during both short and long term suspensions.

e. Alternative Educational Services. The school shall provide alternative educational services to a suspended pupil whenever the pupil is suspended **in excess of 20 cumulative days** within any school year. The alternative educational services shall be designed to enable the pupil to advance from grade to grade.

f. Re-entry Meetings and Intervention Plans. Prior to returning to regular classes, a suspended student, and parent/guardian (when available) shall meet with the building Principal or his/her designee to assist the student in smoothly returning to the school setting.

Any time a pupil is suspended **more than 10 school days in any school year,** upon the pupil's return to school the school district shall develop an intervention plan designed to proactively address the pupil's problematic behaviors by reviewing the problem behavior, re-teaching expectations, and identifying any necessary supports.

g. Attendance Safe Harbor. A student may not be penalized academically solely by virtue of missing class due to a suspension.

7. **"Expulsion"** means the complete denial of a pupil's attendance at school for any of the reasons listed in RSA 193:13, II and IV.

a. Grounds for Expulsion. An expulsion may only be imposed for an act that poses an ongoing threat to the safety of students or school personnel AND that constitutes:

   i. A repetition of an act that warranted long term suspension under section B.6.b, above;

   ii. Any act of physical or sexual assault that would be a felony if committed by an adult;

   iii. Any act of violence pursuant to RSA 651:5, XIII;

   iv. Criminal threatening pursuant to RSA 631:4, II(a); or

   v. For bringing or possessing a firearm as defined in Section 921 U.S.C. Title 18 within a safe school zone as prohibited under RSA 193-D:1, or under the Gun Free School Zones Act, unless such pupil has written authorization from the Superintendent.

   Before expelling a pupil, the Board shall consider each of the following factors:

   (1) The pupil's age.

   (2) The pupil's disciplinary history.

   (3) Whether the pupil is a student with a disability.

   (4) The seriousness of the violation or behavior committed by the pupil.

   (5) Whether the school district or chartered public school has implemented positive behavioral interventions under paragraph V.

   (6) Whether a lesser intervention would properly address the violation or behavior committed by the pupil.

b. Due Process to Be Afforded Prior to Expulsion. Prior to any expulsion, the District will ensure that the **due process standards set forth in Ed 317.04(f)(3) through 317.04 (m)** are followed.

c. Duration of Expulsion. An expulsion will run for the duration stated in the written decision or until the School Board or Superintendent restores the

student's permission to attend school as provided in this policy. An expulsion relating to a firearm in a safe school zone per B.7.a.v, shall be for a period of not less than 12 months.

d. Educational Services. The Superintendent is authorized, but not required, to arrange for educational services to be provided to any student residing in the District who has been expelled by the District or by any other school.

C. Modification or Reinstatement After Suspension or Expulsion.

Expelled or suspended students may request a modification of, or reinstatement from, an expulsion or suspension as provided below. Except for students establishing residency from out-of-state, requests for modification or reinstatement from expulsion/suspension shall be submitted in writing to the Superintendent no later than August 15. The request should set forth the reasons for the request, and include additional information to establish that it is in the best interest of the student and school community to reinstate the student. Such additional information may include such things as work history, letters of reference, medical information, etc. All reinstatements shall include an Intervention Plan as described in paragraph B.6.f, above, including such conditions as the reinstating authority (Superintendent or Board) deem appropriate.

1. **Modification by Superintendent.** Subject to all other applicable laws, regulations and Board policies, and paragraph C.3, below (relating to firearms), the Superintendent is authorized to reinstate any student who has been suspended or expelled from a school in this District, and or enroll a student suspended or expelled from another school or district, on a case-by-case basis.

2. **Review and reinstatement by Board.** A student may request the School Board (of the district of attendance) to review an expulsion decision prior to the start of each school year by filing a written request with the Superintendent detailing the basis of the request. The Board will determine whether and in what manner it will consider any such request after consultation with the Superintendent.

3. **Modification of Expulsion for Firearms.** A student who has been expelled from this District or any other public or private school for bringing or possessing a firearm in a safe school zone as prohibited under RSA 193-D1, or under the Gun

Free Schools Act, may only be reinstated or enrolled if the Superintendent first determines: possession of the firearm was inadvertent and unknowing; the firearm was for sporting purposes and the student did not intend to display the firearm to any other person while within the safe schools zone; the student is/was in the fifth or lower grade when the incident occurred; or the Superintendent determines that the firearm was not loaded; and that no ammunition was reasonably available; and that the pupil had no intention to display the firearm to other students.

Additionally, the School Board may enroll a student expelled from a school outside of New Hampshire for a violation of the Gun Free Schools Act upon the student establishing residency.

D. **Appeals to State Board of Education**. Any decision by the Board (i) to expel a student, (ii) not to reinstate a student upon request, or (iii) enroll a student from another state who had been expelled for a violation of the Gun Free Schools Act, may be appealed to the State Board of Education at any time that the expulsion remains in effect, subject to the rules of the State Board of Education.

E. **Sub-committee of Board.** For purposes of sections B.6 and B.7 of this policy, "Board" or "School Board" may either be a quorum of the full Board, or a subcommittee of the Board duly authorized by the School Board.

F. **Superintendent and Principal Designees.**

Except where otherwise stated in this policy, the Superintendent may delegate any authority s/he has under this policy, and a principal may delegate any authority s/he has under this policy, to other appropriate personnel.

G. **Disciplinary Removal of Students with Disabilities.**

If a student is disabled under the Individuals with Disabilities Act (IDEA), the New Hampshire RSA 186-C, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act, or any other law providing special rights to disabled students, those laws shall govern and shall supersede these local policies to the extent these local policies are inconsistent with those laws. Accordingly, any suspension or expulsion of a child with a disability as defined in Ed 1102.01(t) shall be in accordance with Ed 1124.01.

H. <u>Notice and Dissemination</u>.

This policy shall be made available to families, students and staff as provided in Board policy JIC.

I. <u>Conflict in Law or State Regulation</u>.

If any provision of this policy shall conflict with State or Federal law, or regulation of the New Hampshire Department of Education, then such law or regulation shall apply, and the remainder of the policy shall be read and interpreted to be consistent with the law or regulation. School administrators and families are strongly encouraged to review the links for pertinent statutes and laws as referenced in this policy.

<u>Legal References</u>:

18 U.S.C. § 921, Et seq., Firearms
20 U.S.C. § 7151, Gun-Free Schools
Act RSA 189:15, Regulations
RSA 193:13, Suspension & Expulsion of
Pupils RSA Chapter 193-D, Safe Schools
Zones
RSA 631:4, Criminal Threatening
RSA 651:5, XIII "Act of Violence"
NH Code of Administrative Rules, Section Ed 306.04(a)(3), Discipline
NH Code of Administrative Rules, Section Ed 306.04(f), Student
Discipline Policy NH Code of Administrative Rules, Section Ed. 306.04(g),
Suspension & Expulsion
NH Code of Administrative Rules, Section Ed 317.04, Suspension and Expulsion of Pupils Assuring Due Process Disciplinary Procedures
In re Keelin B., 162 N.H. 38, 27 A.3d 689 (2011)

See Appendix: JICD-R

NH School Administrative Unit 106 | Timberlane Regional School District
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September 21, 2023

Executive Summary - Facilities

EEI Projects Update:

- Danville Boilers:
  - Still need fence around propane tank farm
  - Still need to tune boilers
  - Recently raised hot water temps for kitchen hot water
- Danville HVAC Controls
  - Work is progressing and is mostly out of view of students as it is taking place in attic spaces
- High School Boilers:
  - Waiting on delivery
  - Still need new pads
  - Old boilers to remain in operation until new units are installed and are operational
- High School Hot water heaters:
  - Waiting on replacement as one came from the factory inoperable.
- LED Lighting Upgrades
  - Start up meeting was held on the 14th.
  - Work to start in the elementary Schools, starting at Danville, after the Middle School installation is complete
  - Work will be conducted outside of school hours in 12 hour shifts by Wakita Electric
- Middle School LED Controls Upgrade
  - Work to begin October 16th
  - All work to be performed in 12 hour shifts outside of school hours by Wakita Electric
- Middle School HVAC replacement, (ESSER):
  - Substantially Complete, waiting on heating start up.
- Middle School Roof: Punchlist Items and Seismic upgrades
  - Gutters and rain diverters need to be installed
  - Seismic upgrades to be done after school hours
- Sandown Central Electric Panels:
  - December Vacation install
- District Wide Masonry walls:
  - Waiting on final costs to address this
  - Will be added to the CIP
- Middle School HVAC Controls Upgrade:
  - Scheduled for Summer 2024
- Fire Panels Replacement, DE, PS, HS, MS:
  - Scheduled for Summer 2024
- Atkinson Academy Belfry Repairs:
  - A complete study was conducted and recommendations for repairs will be submitted to the CIP

Other Projects in progress:

- Fencing behind Danville Playground:
  - Still working on getting multiple quotes
- Track and Field Renovation:
  - New coating is an extensive process, and no one can be on the track during installation

- This is scheduled for after 2024 graduation
- Tennis Courts:
  - Pad will be installed October or November
  - Coating Application is very temperature sensitive
    - Due to excessive rain, and workload, this is looking to be a late May installation
- Walk In Freezers, Atkinson Academy and Danville elementary:
  - Scheduled for December Vacation
- Athletic Fields Irrigation Upgrades:
  - Add Alternate was added to RFP to move irrigation lines from under the new jump areas to behind the area to prevent any damage to the new pads
  - Original estimate to the CIP and approved by the board was $125,000
  - Bid Result was $158,000
  - Looking for approval to move forward with this project for the additional cost of $33,000

Future items being planned:

- Flooring upgrades:
  - The floor tiles currently in all buildings are VCT
  - VCT has been shown to create PFOA's during the waxing and stripping process
  - The care of VCT is labor intensive with stripping/deep scrub and recoating, waxing, abatement of asbestos when conducting repairs is also an expensive process
  - I have included money in the budget to replace small sections of flooring, including asbestos abatement, in the facilities budget
  - I am also looking into the options to abate, and replace the VCT with more sustainable flooring and adding this to the CIP to replace whole school flooring
- Cabinetry replacement:
  - Many cabinets and millwork is original to the buildings and in bad shape
  - I am researching options to replace these and will bring this to the CIP when I get pricing.
- Paving Renovations being presented to the CIP:
  - Atkinson Academy lower lot
  - Danville rear road
  - Middle School right side lot
- Solar being brought to CIP
  - High School solar field being planned
  - Looking onto options at other locations
  - There are large grants available for solar through the Inflation Reduction Act that makes solar a viable option
- Additional Athletic Fields
  - Looking at options to have additional land cleared to create additional fields to relieve the use of our fields
  - This would be in conjunction with the land clearing for the solar field being brought forward
- Artificial Turf Field
  - I have been asked to investigate the installation of an artificial turf field
- Danville Roofs:
  - Several sections are failing and in need of replacement
- Atkinson Academy Roof:
  - A section of roof that was replaced in 2019, has a ponding issue that is being caused by a combination of issues including roof drains being higher than the roof membrane, and the fact that the insulation does not taper down to the drains.

  - I am looking into the installation to see what can be done as well as what some options are to alleviate the ponding.
- High School Canopy Removal:
  - Options to remove just the canopy: $27,500, remove the steel supports and patch the walkway: $8,000, or remove the canopy, steel, and replace the walkway: Est $100,000

Respectfully submitted by:
Karl Ingoldsby, Director of Plant Operations

Timberlane Regional School District
Construction Projects Summary *

Project		Project Amount	PO Number	Funding Source	Project Status	SB Approval Date
Phase I						
EEI MS ESSER/District Project	$	1,264,170	223480	ESSER Grants	In progress	12/16/2021
Phase II						
EEI MS Boilers	$	430,544	223479		Complete	6/16/2022
EEI MS Windows	$	236,000			Complete	6/16/2022
PS Backflow Preventer	$	25,000			Complete	6/16/2022
Total	**$**	**691,544**		FY2022 Capital Budget		
Phase III						
AA Roof F&G	$	262,000	232463		In progress	11/17/2022
SC Electric Panels	$	63,000			In progress	11/17/2022
Total	**$**	**325,000**		Additional Adequacy Aid & FY2022 Capital Budget		
Phase IV						
Architectual Review Masonry Walls	$	100,000	232464		In progress	11/17/2023
DE Consolidate boilers & Convert to LP	$	769,365			In progress	11/17/2023
Architectural Program for New School Feasibility	$	35,000			On hold	11/17/2023
Total	**$**	**904,365**		FY2023 Additional Adequacy Aid		
Phase V						
DE HVAC Controls	$	359,100	232465		In progress	11/17/2023
MS Upgrade Pneumatic	$	463,639			Not Started	11/17/2023
Total	**$**	**822,739**		FY2023 Capital Budget		
Phase VI						
HS Boilers	$	950,000	232466		In progress	11/17/2023
Total	**$**	**950,000**		Capital Reserve Fund approved by voters on 3/17/2023		
Phase VII						
HS Water Heater	$	108,000	233194		In progress	6/15/2023
Total	**$**	**108,000**		FY2023 Capital Budget		
Phase VIII						
MS Wireless Lighting Controls	$	120,000	102931		Not started	6/15/2023
Total	**$**	**120,000**		FY2022 Capital Budget		
Phase IX						
Fire AlarmPannels MS	$	65,000			Not Started	6/15/2023
Fire AlarmPannels HS	$	120,000			Not Started	6/15/2023
Fire AlarmPannels DE	$	75,000			Not Started	6/15/2023
Fire AlarmPannels & Sprinkler Heads	$	199,500			Not Started	6/15/2023
	$	**459,500**		FY 2024 Capital Budget		
$25M Phase I						
AA - LED Lighting, Roof A replacement, Structural Allowance	$	549,205	240389		Not Started	3/17/2023
SAU - LED Lighting	$	50,000			Not Started	3/17/2023
MS - Roof Replacement & steeple repairs allowance	$	1,362,043			In progress	3/17/2023
SN - LED Lighting	$	299,250			Not Started	3/17/2023
SC - LED Lighting	$	183,870			Not Started	3/17/2023
PE - LED Lighting	$	285,950			Not Started	3/17/2023
DE - LED Lighting	$	272,650			Not Started	3/17/2023
	$	**3,002,968**		$25M Lease approved by voters on 3/17/2023		
Cape & Island Tennis & track						
Track	$	470,800	233197	FY2022 Capital Budget / Grant	In progress	12/16/2021
Tennis Courst	$	488,000	233198	FY2023 Fund balance	In progress	6/15/2023
Total	**$**	**958,800**				
Thayer						
Walkin Fridge AA	$	35,007	233228		In progress	6/15/2023
Walkin Fridge DE	$	38,559	233229		In progress	6/15/2023
Total	**$**	**73,566**		FY2023 Capital Budget		
Corbett Irrigation						
Controlers	$	30,000			Not Started	6/15/2023
Well Installation	$	35,000			Not Started	6/15/2023
Overhaul	$	60,000			Not Started	6/15/2023
Total	**$**	**125,000**		FY 2024 Capital Budget		
Replacement Kubota Tractor	$	75,000		FY 2024 Capital Budget	RFP pending	6/15/2023

**** This list includes scheduled capital projects over $30K***

Job Postings

JobId	Category	Position Type	Additional Title	Location	Date Posted	Closing Date	Date Available	For Fiscal Year	Time To Fill	AppCount
Administration										
4757	Administration	Financial Analyst	Financial Analyst cc2720	SAU 106 Timberlane Regional District office	8/23/2023	Open until filled	as soon as possible	2023-2024	26	10
Elementary School Teaching										
4764	Elementary School Teaching	Music - Orchestra	Elementary Music Teacher - Orchestra cc1443	Danville Elementary	9/13/2023	Open until filled	9/18/2023	2023-2024	5	0
High School Teaching										
4692	High School Teaching		In School Support Teacher cc2375	Timberlane Regional High School	6/27/2023	Open until filled	8/22/2023	2023-2024	83	2
4753	High School Teaching	Library Media Specialist	Library Media Specialist cc2071	Timberlane Regional High School	8/22/2023	Open until filled	12/29/2023	2023-2024	27	6
4682	High School Teaching	World Language - Spanish	Spanish Teacher cc598	Timberlane Regional High School	6/15/2023	Open until filled	8/22/2023	2023-2024	95	6
Middle School Teaching										
4736	Middle School Teaching	Mathematics	Mathematics Interventionist cc223	Timberlane Regional Middle School	8/3/2023		8/22/2023	2023-2024	46	1
Special Education										
4747	Special Education	Social Worker	.4 ED Program Social Worker cc 2720	Timberlane Regional School District	8/15/2023	Open until filled	8/22/2023	2023-2024	34	2
4767	Special Education	Special Education Teacher	Anticipated Long Term Substitute - Special Ed	Timberlane Regional Middle School	9/18/2023	Open until filled	Oct-23	2023-2024		0
4330	Special Education	Behavior Specialist	BCBA/Behavior Specialist cc 2574	Timberlane Regional School District	5/3/2022	open until filled	8/22/2023	2023-2024	503	21
4506	Special Education		RBT cc 1428	Timberlane Regional Middle School	9/13/2022	open until filled	as soon as possible	2023-2024	370	7
4758	Special Education	Licenced Nursing Asst.	School LNA cc1171	Timberlane Regional Middle School	8/25/2023			2023-2024	24	1
4344	Special Education	Psychologist	School Psychologist - Part Time .6 Position cc	Timberlane Regional School District	5/19/2022	open until filled	as soon as possible	2023-2024	487	6
4754	Special Education	Psychologist	School Psychologist cc1422	Timberlane Regional School District	8/22/2023	Open until filled	as soon as possible	2023-2024	27	0
4685	Special Education	Psychologist	School Psychologist cc2145	Timberlane Regional School District	6/19/2023	Open until filled	8/22/2023	2023-2024	91	1
4604	Special Education	Special Education Teacher	Special Education Teacher cc 1032	Timberlane Regional High School	4/19/2023	Open until filled	8/22/2023	2023-2024	152	5
4756	Special Education	Special Education Teacher	Special Education Teacher cc1060	Pollard School	8/22/2023	Open until filled	as soon as possible	2023-2024	27	0
4644	Special Education	Special Education Teacher	Special Education Teacher cc1105	Danville Elementary	5/19/2023	Open until filled	8/22/2023	2023-2024	122	4
4639	Special Education	Special Education Teacher	Special Education Teacher cc1300	Timberlane Regional High School	5/19/2023	Open until filled	8/22/2023	2023-2024	122	1
4641	Special Education	Special Education Teacher	Special Education Teacher cc747	Pollard School	5/19/2023	Open until filled	8/22/2023	2023-2024	122	5
4750	Special Education	Special Education Teacher	Special Education Teacher/Case Manager cc1	Timberlane Regional Middle School	8/18/2023	Open until filled	as soon as possible	2023-2024	31	0
4609	Special Education	Speech and Language Pathologist	Speech Language Pathologist cc 212	Pollard School	4/21/2023	Open until filled	8/22/2023	2023-2024	150	3
4605	Special Education	Speech and Language Pathologist	Speech Language Pathologist cc 2218	Timberlane Regional High School	4/19/2023	Open until filled	8/22/2023	2023-2024	152	2
4652	Special Education	Speech and Language Pathologist	Speech Language Pathologist cc1316	Timberlane Regional Middle School	5/24/2023	Open until filled	8/22/2023	2023-2024	117	1
4751	Special Education	Speech and Language Pathologist	Speech Language Pathologist cc2242	Timberlane Regional School District	8/18/2023	Open until filled	8/22/2023	2023-2024	31	0
4673	Special Education	Speech and Language Pathologist	Speech Language Pathologist cc885	Sandown North	6/12/2023			2023-2024	98	1
Student Services										
4662	Student Services	School Social Worker	School Social Worker cc2594	The Learning Center at Sandown Central	5/31/2023	Open until filled	8/22/2023	2023-2024	110	6
4660	Student Services	School Social Worker	School Social Worker cc830	Timberlane Regional School District	5/31/2023	Open until filled	8/22/2023	2023-2024	110	6