



Finite Math - High School Math Curriculum Resources

Curriculum Overview

[The Alabama Course of Study: Mathematics \(2019\)](#) provides the framework for the K-12 study of Mathematics in Alabama's public schools. Content standards in this document are minimum and required, fundamental and specific, but not exhaustive. The standards set high expectations for student learning in all grades.

Here are definitions to help understand this curriculum guide:

- **Units of Study:** A series of lessons, experiences, and assessments aligned to standards that may last two to six weeks.
- **Priority Standards:** These are the standards students must know and be able to do to be prepared for the next grade level or course.
- **Supporting Standards:** These standards support, connect to, or enhance priority standards.
- **Knowledge:** What students should know related to the standard.
- **Skills:** What students should be able to do related to the standard.
- **Bloom's Taxonomy:** This hierarchy helps describe the complexity and requirements of a standard.
- **Quad:** This framework has four parts that help determine the rigor and relevance of a standard: Acquisition, Application, Assimilation, Adaptation.
- **ACT:** This refers to ACT standards alignment.
- **Key Understandings:** Essential ideas students need to understand about the standard.
- **Key Vocabulary:** Keywords that should be taught to ensure understanding of the standard.
- **Formative Assessment:** Frequent and ongoing checks for understanding teachers can use throughout the unit.
- **Summative Assessment:** How students will be assessed at the end of a unit to demonstrate their level of mastery of the standards.
- **Activities & Resources:** Specific examples, lessons, and/or resources that may be used to support implementation of the standard.
- **RTI:** Response to Intervention - additional supports/resources teachers can use for students who need them.
- **Extensions:** Additional activities and resources to extend the learning experience, especially for accelerated students.

Finite Math - Curriculum At A Glance - Pacing Calendar

Quarter	# Weeks	Unit Name	Priority Standards	Supporting Standards
	1	Launch Week	Pre-Assessment	
	5	UNIT 1: Logic	1, 2	3, 4, 5
	3	UNIT 2: Counting Techniques	6	7, 10
	4	UNIT 3: Permutations and Combinations	8b, 8c, 8d	8a, 9, 15
	3	UNIT 4: Sequences and Series	11, 12, 13, 14	
	3	UNIT 5: Circuits and Vertex Coloring	17a, 17b	16, 19
	4	UNIT 6: Graph Theory	18a, 18b, 18c	20, 21
	4	UNIT 7: Voting Systems	23, 24	22a, 22b, 25
	4	UNIT 8: Apportionment	27	26, 28
	5	UNIT 9: Online Information	29, 30a, 30b, 31, 32	

UNIT 1: Logic

DURATION: 5 weeks

CONTENT STANDARDS

PRIORITY STANDARDS

- 1. Represent logic statements in words, with symbols, and in truth tables, including conditional, biconditional, converse, inverse, contrapositive, and quantified statements.
- 2. Represent logic operations such as and, or, not, nor, and x or (exclusive or) in words, with symbols, and in truth tables.

SUPPORTING STANDARDS

- 3. Use truth tables to solve application-based logic problems and determine the truth value of simple and compound statements including negations and implications.
 - a. Determine whether statements are equivalent and construct equivalent statements..
- 4. Determine whether a logical argument is valid or invalid, using laws of logic such as the law of syllogism and the law of detachment.
 - a. Determine whether a logical argument is a tautology or a contradiction.
- 5. Prove a statement indirectly by proving the contrapositive of the statement.

KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM'S TAXONOMY	QUAD	ACT
Represent logic statement in words, with symbols, and in truth tables		Understanding	B	
Represent logic operations such as <i>and, or, not, nor, and x or (exclusive or)</i> in words, with symbols, and in truth tables		Understanding	B	
	Use truth tables to solve application-based logic problems	Applying	B	
Determine the truth value of simple and compound statements		Understanding	B	
Determine whether a logical argument is valid or invalid		Understanding	B	
	Prove a statement indirectly by proving the contrapositive of the statement	Evaluating	C	

KEY COMPONENTS

LEARNING TARGETS

- 11.1-3

Represent logic statement in words, with symbols, and in truth tables.

Represent logic operations such as *and*, *or*, *not*, *nor*, and *x or (exclusive or)* in words, with symbols, and in truth tables.

Use truth tables to solve application-based logic problems.

Determine the truth value of simple and compound statements.

Determine whether a logical argument is valid or invalid.

Prove a statement indirectly by proving the contrapositive of the statement.

KEY VOCABULARY

- Statement
- Truth Values
- Connectives
- Compound statements
- Tautology
- Contradiction
- Conditional Statements
- Converse, Inverse, Contrapositive
- Biconditional

ESSENTIAL QUESTION(S)

- What is considered to not be a statement?
- The words *and*, *or*, and *not* are defined as connectives. What is another way to describe *and*, *or*, and *not*?
- Give an example in statement form and symbolic form?
- Tautology and contradiction are equivalent, true or false? Explain if false.
- Photosynthesis is a necessary contradiction for plant life to grow. Write this example in symbolic form. Label P and Q in the example.
- A biconditional statement is only false when both are false, true or false? Explain if false.

PRIOR KNOWLEDGE

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FORMATIVE ASSESSMENT

SUMMATIVE ASSESSMENT

ACTIVITIES & RESOURCES

RTI	EXTENSION OPPORTUNITIES

UNIT 2: Counting Techniques	DURATION: 3 weeks
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CONTENT STANDARDS	
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PRIORITY STANDARDS <ul style="list-style-type: none"> 6. Use multiple representations and methods for counting objects and developing more efficient counting techniques. 	SUPPORTING STANDARDS <ul style="list-style-type: none"> 7. Develop and use the Fundamental Counting Principle for counting independent and dependent events. <ul style="list-style-type: none"> a. Use various counting models (including tree diagrams and lists) to identify the distinguishing factors of a context in which the Fundamental Counting Principle can be applied. 10. Use the Pigeonhole Principle to solve counting problems.
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KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM'S TAXONOMY	QUAD	ACT
Use multiple representations and methods for counting objects and developing counting techniques		Applying	B	
Use various counting techniques to determine probabilities of events		Applying	B	
	Use the pigeonhole principle to solve counting problems	Applying	B	

KEY COMPONENTS	
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LEARNING TARGETS <ul style="list-style-type: none"> 5.2-3 and Google 	KEY VOCABULARY <ul style="list-style-type: none"> Venn Diagram
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<p>Use multiple representations and methods for counting objects and developing counting techniques.</p> <p>Use various counting techniques to determine probabilities of events.</p> <p>Use the pigeonhole principle to solve counting problems.</p>	<ul style="list-style-type: none"> ● DeMorgan's Laws ● Pigeonhole Principle 	
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<p>ESSENTIAL QUESTION(S)</p> <ul style="list-style-type: none"> ● What can we use to solve for $S \cup T$ or $S \cap T$? ● How is the principle for counting related to Venn diagrams? ● Why are Venn diagrams so useful? ● What does 'mean and how does it change ($S \cup T$)'? ● Describe the difference between U and \cap? ● How many regions does a 3 circle Venn diagram have? How many does a 2 circle Venn diagram have? ● One must always be given the number of elements in each of the basic regions of the Venn diagram, True or False. 	<p>PRIOR KNOWLEDGE</p> <ul style="list-style-type: none"> ●
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FORMATIVE ASSESSMENT	SUMMATIVE ASSESSMENT

ACTIVITIES & RESOURCES

RTI	EXTENSION OPPORTUNITIES
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UNIT 3: Permutations and Combinations

DURATION: 4 weeks

CONTENT STANDARDS

PRIORITY STANDARDS

- **8. Using application-based problems, develop formulas for permutations, combinations, and combinations with repetition and compare student-derived formulas to standard representations of the formulas.**
 - **b. Using application-based problems, calculate the number of permutations of a set with n elements. Calculate the number of permutations of r elements taken from a set of n elements.**
 - **c. Using application-based problems, calculate the number of subsets of size r that can be chosen from a set of n elements, explaining this number as the number of combinations “ n choose r .”**
 - **d. Using application-based problems, calculate the number of combinations with repetitions of r elements from a set of n elements as “ $(n + r - 1)$ choose r .”**

SUPPORTING STANDARDS

- **8. Using application-based problems, develop formulas for permutations, combinations, and combinations with repetition and compare student-derived formulas to standard representations of the formulas.**
 - **a. Identify differences between applications of combinations and permutations.**
- **9. Use various counting techniques to determine probabilities of events.**
- **15. Develop and apply connections between Pascal’s Triangle and combinations.**

KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM’S TAXONOMY	QUAD	ACT
	Develop formulas for permutations, combinations, and combinations with repetition	Creating	D	
Compare students-derived formulas to standard representations of the formulas		Analyzing	C	
Find patterns in application problems involving series and sequences		Understanding	B	
	Develop recursive and explicit formulas as models to understand and describe sequential change	Creating	D	
	Develop and apply connections between Pascal’s Triangle and combinations	Creating	D	

KEY COMPONENTS

LEARNING TARGETS

- 5.5-7

Develop formulas for permutations, combinations, and combinations with repetition.

Compare students-derived formulas to standard representations of the formulas.

Find patterns in application problems involving series and sequences.

Develop recursive and explicit formulas as models to understand and describe sequential change.

Develop and apply connections between Pascal's Triangle and combinations.

KEY VOCABULARY

- Factorial
- Permutation
- Combination
- Binomial Theorem
- Pascal's Triangle

ESSENTIAL QUESTION(S)

- How many words of two distinct letters can be informed from the letters, permutation or combination? Explain.
- Both permutations and combinations determine the number of possible arrangements, true or false.
- What is the difference between permutations and combinations?
- Given a counting problem and a subset of all possible outcomes, what is the other subset known as?
- What counting technique can be used with the Binomial Theorem? Why is it used?
- What tool is used with the Binomial Theorem? Who created it?
- Why was the Binomial Theorem created?

PRIOR KNOWLEDGE

- Factorial
- Binomial Coefficient

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ACTIVITIES & RESOURCES

RTI	EXTENSION OPPORTUNITIES

UNIT 4: Sequences and Series	DURATION: 3 weeks
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CONTENT STANDARDS	
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<p>PRIORITY STANDARDS</p> <ul style="list-style-type: none"> ● 11. Find patterns in application problems involving series and sequences, and develop recursive and explicit formulas as models to understand and describe sequential change. ● 12. Determine characteristics of sequences, including the Fibonacci Sequence, the triangular numbers, and pentagonal numbers. ● 13. Use the recursive process and difference equations to create fractals, population growth models, sequences, and series. ● 14. Use mathematical induction to prove statements involving the positive integers. 	<p>SUPPORTING STANDARDS</p> <ul style="list-style-type: none"> ●
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KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM'S TAXONOMY	QUAD	ACT
Find patterns involving series and sequences		Understanding	B	
	Develop recursive and explicit formulas as models to understand and describe sequential change	Creating	D	
Determine characteristics of sequences, including the fibonacci sequence, the triangular numbers, and pentagonal numbers		Understanding	B	

	Create fractals, population growth models, sequences, and series	Creating	D	
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KEY COMPONENTS

<p>LEARNING TARGETS</p> <ul style="list-style-type: none"> • Google <p>Find patterns involving series and sequences.</p> <p>Develop recursive and explicit formulas as models to understand and describe sequential change.</p> <p>Determine characteristics of sequences, including the fibonacci sequence, the triangular numbers, and pentagonal numbers.</p> <p>Create fractals, population growth models, sequences, and series.</p>	<p>KEY VOCABULARY</p> <ul style="list-style-type: none"> • Sequence • Series • Arithmetic Sequence/Series • Geometric Sequence/Series • Explicit • Recursive • Golden Ratio • Fibonacci Sequence 	
<p>ESSENTIAL QUESTION(S)</p> <ul style="list-style-type: none"> • Find an explicit rule for the <i>n</i>th term of the sequence? • Find the sum of the arithmetic series using a formula. • Determine if the following sequence is arithmetic or geometric. • Identify the common ratio for the given geometric sequence. • Which of the following would be a fibonacci sequence? • Which of the following recursive formulas represents the given sequence? • What is the approximate number for the Golden Ratio? 	<p>PRIOR KNOWLEDGE</p> <ul style="list-style-type: none"> • Functions • Compound interest 	

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RTI

EXTENSION OPPORTUNITIES

UNIT 5: Circuits and Vertex Coloring

DURATION: 3 weeks

CONTENT STANDARDS

PRIORITY STANDARDS

- 17. Solve problems involving networks through investigation and application of existence and nonexistence of Euler paths, Euler circuits, Hamilton paths, and Hamilton circuits.
 - a. Develop optimal solutions of application-based problems using existing and student created algorithms.
 - b. Give an argument for graph properties.

SUPPORTING STANDARDS

- 16. Use vertex and edge graphs to model mathematical situations involving networks. a. Identify properties of simple graphs, complete graphs, bipartite graphs, complete bipartite graphs, and trees.
- 19. Use vertex-coloring, edge-coloring, and matching techniques to solve application-based problems involving conflict.

KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM'S TAXONOMY	QUAD	ACT
	Use vertex and edge graphs to model mathematical situations involving networks.	Applying	B	
	Solve problems involving networks through investigation and application.	Applying	B	
	Solve application problems of existence and nonexistence of Euler paths, Euler circuits, Hamilton paths, and Hamilton circuits.	Applying	B	
	Use vertex-coloring, edge-coloring, and matching techniques.	Applying	B	
	Solve application-based problems involving conflict.	Applying	B	

KEY COMPONENTS

LEARNING TARGETS

- Google

KEY VOCABULARY

- Euler Circuits
- Vertex Edge Graph

<p>Use vertex and edge graphs to model mathematical situations involving networks.</p> <p>Solve problems involving networks through investigation and application.</p> <p>Solve application problems of existence and nonexistence of Euler laths, Euler circuits, Hamilton paths, and Hamilton circuits.</p> <p>Use vertex-coloring, edge-coloring, and matching techniques.</p> <p>Solve application-based problems involving conflict.</p>	<ul style="list-style-type: none"> ● Mathematical Model ● Degree of the Vertex ● Algorithm ● Welsh-Powell Algorithm ● Matrices ● Adjacent Vertices ● Adjacency Matrix ● Connected Graph 	
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<p>ESSENTIAL QUESTION(S)</p> <ul style="list-style-type: none"> ● What two characteristics are needed to create a path? ● What is the difference between a circuit and an Euler circuit? ● What term also defines the degree of a vertex? ● Are all vertice connected in a graph? If not, what are they called when they aren't? ● All graphs have Euler circuits, true or false? ● How can a graph become Eulerized? ● WHat method is used to discover algorithms that can help solve real world problems? Where did this method originate from? ● What famous algorithm is used for graph coloring? ● How is graph coloring popularly used in the real world? 	<p>PRIOR KNOWLEDGE</p> <ul style="list-style-type: none"> ●
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UNIT 6: Graph Theory

DURATION: 4 weeks

CONTENT STANDARDS

PRIORITY STANDARDS

- 18. Apply algorithms relating to minimum weight spanning trees, networks, flows, and Steiner trees.
 - a. Use shortest path techniques to find optimal shipping routes.
 - b. Show that every connected graph has a minimal spanning tree.
 - c. Use Kruskal’s Algorithm and Prim’s Algorithm to determine the minimal spanning tree of a weighted graph.

SUPPORTING STANDARDS

- 20. Determine the minimum time to complete a project using algorithms to schedule tasks in order, including critical path analysis, the list-processing algorithm, and student-created algorithms.
- 21. Use the adjacency matrix of a graph to determine the number of walks of length n in a graph.

KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM’S TAXONOMY	QUAD	ACT
	Apply algorithms relating to minimum weight spanning trees, networks, flows, and Steiner trees.	Applying	B	
Determine the minimum time to complete a project.		Understanding	B	
	Use algorithms to schedule tasks in order.	Applying	B	
Use adjacency matrices to determine the number of walks of length n in a graph.		Applying	B	

KEY COMPONENTS

LEARNING TARGETS

- Google

Apply algorithms relating to minimum weight spanning trees, networks, flows, and Steiner trees.

Determine the minimum time to complete a project.

KEY VOCABULARY

- Cycle
- Tree
- Spanning
- Traveling Salesman Problem
- Algorithm

<p>Use algorithms to schedule tasks in order.</p> <p>Use adjacency matrices to determine the number of walks of length n in a graph.</p>	<ul style="list-style-type: none"> ● Node ● Weight ● Minimum ● Graph Theory ● Breadth First Search ● Child Vertex ● Depth First Search ● Sibling Vertex ● Degrees of Separation 	
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<p>ESSENTIAL QUESTION(S)</p> <ul style="list-style-type: none"> ● What is the similarity and the difference between a cycle and a tree? ● Which field of math are spanning trees found? How are spanning trees applied to computer networks? ● Give another generalization for TSP. When was TSP first formulated? ● State how the TSP is used in Science and Astronomy? ● Who first formulated the TSP and when was it first recognized in the mathematical world? ● In what other fields did researchers use the TSP? ● What are the most nodes an example of the TSP ever had? When did it occur and who is responsible? ● What is graph theory and what kind of applications does it have? 	<p>PRIOR KNOWLEDGE</p> <ul style="list-style-type: none"> ●
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UNIT 7: Voting Systems

DURATION: 4 weeks

CONTENT STANDARDS

PRIORITY STANDARDS

- 23. Apply a variety of methods for determining a winner using a preferential ballot voting system, including plurality, majority, run-off with majority, sequential run-off with majority, Borda count, pairwise comparison, Condorcet, and approval voting.
- 24. Identify issues of fairness for different methods of determining a winner using a preferential voting ballot and other voting systems and identify paradoxes that can result.

SUPPORTING STANDARDS

- 22. Analyze advantages and disadvantages of different types of ballot voting systems.
 - a. Identify impacts of using a preferential ballot voting system and compare it to single candidate voting and other voting systems.
 - b. Analyze the impact of legal and cultural features of political systems on the mathematical aspects of elections.
- 25. Use methods of weighted voting and identify issues of fairness related to weighted voting.
 - a. Distinguish between weight and power in voting.

KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM'S TAXONOMY	QUAD	ACT
	Analyze advantages and disadvantages of different types of ballot voting systems.	Analyzing	C	
	Apply a variety of methods for determining a winner using a preferential ballot voting system.	Applying	B	
Identify issues of fairness for different methods of determining a winner.		Understanding	B	
Use methods of weighted voting.		Applying	B	
Identify issues of fairness related to weighted voting.		Understanding	B	

KEY COMPONENTS

<p>LEARNING TARGETS</p> <ul style="list-style-type: none"> ● Google <p>Analyze advantages and disadvantages of different types of ballot voting systems.</p> <p>Apply a variety of methods for determining a winner using a preferential ballot voting system.</p> <p>Identify issues of fairness for different methods of determining a winner.</p> <p>Use methods of weighted voting.</p> <p>Identify issues of fairness related to weighted voting.</p>	<p>KEY VOCABULARY</p> <ul style="list-style-type: none"> ● Critical Player ● Approval Voting ● Insincere Voting ● The Independence of Irrelevant(Alternatives Criterion) ● Voting Power ● Banzhaf Power Index ● Shapely Shubik Power Index ● Plurality Method ● The Plurality with Elimination Method ● Majority Rule ● The Majority Method ● The Condorcet Criterion ● The Monotonicity Criterion ● Arrow’s Impossibility Theorem ● The Method of Pairwise Comparisons ● Preference Ballots ● The Borda Count Method ● Preference Schedule 	
<p>ESSENTIAL QUESTION(S)</p> <ul style="list-style-type: none"> ● What rule is related to democracy? ● Complete the statement: The right voting system does not ____. ● Give the three preferential voting methods and a description of each. ● What are some basic assumptions people make about the voting system? ● Who is the Conocret winner? ● Describe the similarities and differences of sincere voting and strategic voting. ● Give the 1st and 3rd definition of weighted voting stated in the chunking. 	<p>PRIOR KNOWLEDGE</p> <ul style="list-style-type: none"> ● 	
<p>FORMATIVE ASSESSMENT</p>	<p>SUMMATIVE ASSESSMENT</p>	

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ACTIVITIES & RESOURCES

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UNIT 8: Apportionment

DURATION: 4 weeks

CONTENT STANDARDS

PRIORITY STANDARDS

- 27. Identify and apply historic methods of apportionment for voting districts including Hamilton, Jefferson, Adams, Webster, and Huntington-Hill. Identify issues of fairness and paradoxes that may result from methods.

SUPPORTING STANDARDS

- 26. Explain and apply mathematical aspects of fair division, with respect to classic problems of apportionment, cake cutting, and estate division. Include applications in other contexts and modern situations.
- 28. Use spreadsheets to examine apportionment methods in large problems.

KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM'S TAXONOMY	QUAD	ACT
Explain mathematical aspects of fair division.		Understanding	B	
	Apply mathematical aspects of fair division, with respect to apportionment.	Applying	B	
Identify apportionment methods.		Understanding	B	
	Apply methods of apportionment for voting districts.	Applying	B	
Use spreadsheets to examine apportionment methods in large problems.		Applying	B	

KEY COMPONENTS

LEARNING TARGETS

- Google

Explain mathematical aspects of fair division.

Apply mathematical aspects of fair division, with respect to apportionment.

KEY VOCABULARY

- Webster's Method
- Adams Method
- Jefferson Method
- Hamilton Method
- New State Paradox
- Alabama Paradox

<p>Identify apportionment methods.</p> <p>Apply methods of apportionment for voting districts.</p> <p>Use spreadsheets to examine apportionment methods in large problems.</p>	<ul style="list-style-type: none"> ● Population Paradox ● Quota Rule ● Standard Quota ● Standard Divisor ● Apportionment 	
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<p>ESSENTIAL QUESTION(S)</p> <ul style="list-style-type: none"> ● What is apportionment and how is it used in the real world? ● Which other avenues can apportionment be applied other than political parties in the government? ● What are the COMMON features used to calculate apportioning? ● Who proposed the first apportionment method and who did his method work? ● How did the Alabama Paradox receive its name? ● Whose method was never used to apportion the House of Representatives? Which method is now the permanent method used? ● How are Jefferson’s, Adam’s, and Webster’s methods similar? How are they different? ● What did Jefferson’s method violate? Hint: It did this in 1832 in NEW YORK. 	<p>PRIOR KNOWLEDGE</p> <ul style="list-style-type: none"> ● Division properties
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UNIT 9: Online Information**DURATION: 5 weeks****CONTENT STANDARDS****PRIORITY STANDARDS**

- 29. Critically analyze issues related to information processing including accuracy, efficiency, and security.
- 30. Apply ciphers (encryption and decryption algorithms) and cryptosystems for encrypting and decrypting including symmetric-key or public-key systems.
 - a. Use modular arithmetic to apply RSA (Rivest-Shamir-Adleman) public-key cryptosystems.
 - b. Use matrices and their inverses to encode and decode messages.
- 31. Apply error-detecting codes and error-correcting codes to determine accuracy of information processing.
- 32. Apply methods of data compression.

SUPPORTING STANDARDS

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KNOWLEDGE (students need to know):	SKILLS (students need to be able to do):	BLOOM'S TAXONOMY	QUAD	ACT
	Analyze issues related to information processing with accuracy, efficiency, and security.	Analyzing	C	
	Apply ciphers and cryptosystems for encrypting and decrypting.	Applying	B	
	Apply error-detecting codes and error-correcting codes to determine accuracy of information processing.	Applying	B	
	Apply methods of data compression.	Applying	B	

KEY COMPONENTS**LEARNING TARGETS**

- Google

KEY VOCABULARY

- Cryptography

<p>Analyze issues related to information processing with accuracy, efficiency, and security.</p> <p>Apply ciphers and cryptosystems for encrypting and decrypting.</p> <p>Apply error-detecting codes and error-correcting codes to determine accuracy of information processing.</p> <p>Apply methods of data compression.</p>	<ul style="list-style-type: none"> ● Accuracy ● Bias/Perspective ● Reliability ● Encryption ● Authentication ● Physical Security ● Firewall ● Error Correcting Codes ● Error Detecting Codes ● Modulus ● Relevance ● Encipher ● Decipher ● Huffman Codes 	
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<p>ESSENTIAL QUESTION(S)</p> <ul style="list-style-type: none"> ● Which state the CARS checklist. ● What are the top three computer security threats? ● Which letter(s) is used the most according to the Huffman tree? Which are used the least? 	<p>PRIOR KNOWLEDGE</p> <ul style="list-style-type: none"> ●
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