

SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Springfield Public Schools
Springfield, New Jersey 07081

Math Lab
Grade 6, 7, and 8

Curriculum Guide

2025

This curriculum may be modified through varying materials, techniques, and strategies as per an individual student's IEP.

Springfield Board of Education
Approved August 25, 2025

Springfield Public Schools
Springfield, New Jersey

Rachel Goldberg
Superintendent of Schools

Erica Scudero
Asst. Superintendent of Curriculum and Instruction

Curriculum Developed By:

Dr. Norman Francis ~ Principal of Jonathan Dayton High School

Ron Slate ~ Principal of Florence M. Gaudineer Middle School

Gregory Salmon ~ STEM Supervisor

Christina Rodriguez ~ FMG Math

EXTRACT OF THE MINUTES OF A MEETING OF
THE BOARD OF EDUCATION OF
THE TOWNSHIP OF SPRINGFIELD
COUNTY OF UNION, NEW JERSEY
AS RECORDED IN THE OFFICIAL MINUTE BOOK

Resolution: 21
Introduced By: Mrs. Turnbull
Seconded By: Mrs. Murphy
Adopted: August 25, 2025

Curriculum Update

To approve the following curriculum revisions:

a. Elementary School Level
   1. Grade K Art
   2. Grade 1 Music
   3. Grade 2 Music
   4. Grade 4 Art
   5. Grade 4 Instrumental Music
   6. Grade 4 Vocal/General Music
   7. Gifted & Talented through Art K-5

b. Middle School Level
   1. Concert Choir Gr. 6-8
   2. Concert Band Gr. 6-8
   3. Grade 7 Art (Ceramics)
   4. Grade 7-Art Lab Maker Space
   5. Grade 6 Accelerated Math
   6. Math Lab Grades 6, 7, & 8

c. High School
   1. Advanced Ceramics and 3D Forms
   2. Advanced TV Production
   3. Animation *(New)*
   4. AP Environmental Science
   5. Bake Shop I
   6. Bake Shop II
   7. Business Law
   8. Business Management
   9. Dance I
   10. Dance II
   11. Digital Photography

(continued)

12. Drawing and Painting
13. Foundations in Crafts
14. History of Pop Culture *(New)*
15. Introduction to Graphic Design
16. Introduction to Television
17. JDHS Beginning String Ensemble
18. Multimedia Storytelling *(New)*

I, Michelle Calas, School Business Administrator/ Board Secretary of the Springfield Board of Education, hereby certify that the extract from the minutes of a meeting of the Board of Education duly called and held on August 25, 2025 has been compared by me with the original minute book of said Board of Education, and is a true, complete and exact copy thereof, as far as the same relates to the subject matter to on said extract.

In WITNESS THEREOF, I have hereunto set my hand and seal of the Springfield Board of Education, this 26th day of August 2025.

SEAL

Michelle Calas
School Business Administrator/ Board Secretary



Unit Overview Template

Content Area: Math **Grade Level:** 6 **Unit Title:** Grade 6 Lab

Unit Summary: In Grade 6 Math Lab, students build a strong foundation in number operations, algebraic thinking, geometry, ratios, and data analysis through targeted small-group instruction. They develop their understanding of ratios and rates by connecting them to multiplication and division, using this reasoning to solve real-world problems involving proportional relationships. Students deepen their conceptual knowledge of fractions, extending it to include dividing fractions and working with negative numbers as they expand into the full rational number system. They learn to represent and analyze mathematical situations using variables, expressions, and one-step equations, building fluency with evaluating and rewriting expressions. In geometry, students explore area, surface area, and volume by decomposing and rearranging shapes, using visual reasoning to justify formulas. They begin working with the coordinate plane to represent shapes and solve problems. In statistics, students develop early skills in analyzing data sets, comparing measures of center and variability, and interpreting data in context. Math Lab provides scaffolded support and multiple entry points to help all students access and master these key grade-level concepts.

Primary Interdisciplinary Connections: *Science and Engineering*

21st Century Themes √ Creativity and Innovation √ Critical Thinking and Problem Solving √ ICT Literacy √ Information Literacy √ Life and Career Skills √ Communication and Collaboration √ Media Literacy

Unit Rationale: Sixth grade is a pivotal year in which students transition from basic arithmetic to more complex mathematical thinking. This course provides targeted support to help students develop confidence and competence with foundational concepts such as ratios, fractions, rational numbers, expressions, equations, and data analysis. By reinforcing these essential skills through small-group instruction, visual models, and real-world applications, students are better prepared to access grade-level content and build a strong base for future success in math.

Career Readiness (Standard 9):

9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential.
9.2.8.CAP.19: Relate academic achievement, as represented by high school diplomas, college degrees, and industry credentials, to employability and to potential level
9.4.8.CT.1: Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective (e.g., MS-ETS1-2).
9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.
9.4.8.IML.7: Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a)
9.4.8.TL.3: Select appropriate tools to organize and present information digitally.
9.4.8.TL.5: Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration.

Learning Targets	
Standards: 6.RP, 6.NS, 6.EE, 6.G; 6.SP	
Content Statements: Understand ratio concepts and use ratio reasoning to solve problems; Apply and extend previous understandings of multiplication and division to divide fractions by fractions; Compute fluently with multi-digit numbers and find common factors and multiples; Apply and extend previous understandings of numbers to the system of rational numbers; Apply and extend previous understandings of arithmetic to algebraic expressions; Reason about and solve one-variable equations and inequalities; Represent and analyze quantitative relationships between dependent and independent variables; Solve real-world and mathematical problems involving area, surface area, and volume; Develop understanding of statistical variability; Summarize and describe distributions.	
CPI#:	**Cumulative Progress Indicator (CPI):**
6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."
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. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is ¾-cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger." (Clarification: Expectations for unit rates in this grade are limited to non-complex fractions.)
6.RP.A.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc). How much chocolate will

	each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?
6.NS.B.2	With accuracy and efficiency, divide multi-digit numbers using the standard algorithm.
6.NS.B.3	With accuracy and efficiency, add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.B.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example 36 + 8 as 4(9 + 2).
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.NS.C.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3)=3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the location of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.C.7	Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret -3 > -7 as a statement that -3 is located to the right of -7 on a number line oriented from left to right. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write -3°C > -7°C to express the fact that -3°C is warmer than -7°C. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as the magnitude for a positive or negative quantity in a real world situation. For example, for an account balance of -30 dollars, write |-30| = 30 to describe the size of the debt in dollars.

	d. Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.
6.NS.C.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.
6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as 5 - y. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2(8+7) as a product of two factors; view (8+7) as both a single entity and a sum of two terms. c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = 6s^3$ and $S = 6s^2$ to find the volume and surface area of a cube with sides of length $s = ½$.
6.EE.A.3	Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3(2+x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6(4x + 3y) ; apply properties of operations to y + y+ y to produce the equivalent expression 3y.
6.EE.A.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.
6.EE.B.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
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.

6.EE.B.7	Solve real-world and mathematical problems by writing and solving equations of the form x + p and px=q for cases in which p, q and x are all nonnegative rational numbers.
6.EE.B.8	Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x > c or x < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.
6.EE.C.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d=65t to represent the relationship between distance and time.
6.G.A.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
6.G.A.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and B = Bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.G.A.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
6.G.A.4	Represent three-dimensional figures (e.g., pyramid, triangular prism, rectangular prism) using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
6.SP.A.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.
6.SP.A.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
6.SP.A.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

6.SP.B.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
6.SP.B.5	Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.
MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Unit Essential Questions:

- How do ratios and proportional relationships help us solve real-world and mathematical problems?
- Why is it important to understand how to compute with fractions, decimals, and multi-digit numbers?
- How can we use algebra to describe and solve problems?
- What does it mean for a number to be rational, and how do we represent rational numbers?
- How do we model relationships between variables in real-life situations?
- How can geometric formulas be used to solve problems involving space and measurement?
- How can data be represented, interpreted, and used to make decisions?

Unit Enduring Understandings:

- Ratios and proportional reasoning are foundational tools for comparing quantities and solving problems in a variety of contexts.
- Mastering operations with fractions and whole numbers builds fluency needed for more complex mathematics.
- Algebraic expressions and equations provide a language for representing relationships and solving problems.
- Rational numbers expand our number system and help us describe quantities more precisely.
- Understanding and analyzing relationships between variables supports decision-making and prediction.
- Geometry connects measurement with the real world through area, surface area, and volume.
- Data and statistics help us understand variability, make predictions, and draw informed conclusions.

Unit Learning Targets:

Students will develop a deep understanding of ratios and proportional relationships and apply this understanding to solve contextual problems. They will extend their knowledge of multiplication and division to divide fractions by fractions, building procedural fluency and conceptual clarity. Students will compute accurately with multi-digit numbers and identify common factors and multiples. They

will explore rational numbers, including negative values, and represent them on number lines and coordinate planes. By transitioning to algebra, students will learn to write, simplify, and evaluate expressions and solve one-variable equations and inequalities. They will analyze and represent relationships between dependent and independent variables using tables, graphs, and equations. In geometry, students will solve real-world problems involving area, surface area, and volume. Finally, students will gain insight into statistical variability, learning to summarize and describe data distributions using measures of center and variability, and interpret data to support reasoning and argument.

- Climate change examples:
  - Students may solve real-world problems by writing and solving one-variable equations related to deforestation and/or increasing livestock farming as contributors to climate change.
  - Students may analyze and use variables to represent the relationship between greenhouse emissions and livestock farming when representing relationships among contributors to climate change.
  - Students may display numerical data related to deforestation and increasing livestock farming as contributors to climate change in plots on a number line, including dot plots, histograms, and box plots.

Evidence of Learning

Summative Assessment: Ongoing

Equipment Needed: iPads, notebooks

Teacher Resources:

- Online Textbook: Big Ideas Math
- Google Classroom
- LinkIt
- IXL
- iReady Toolkit

Formative Assessments:

- Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments
- Math Games
- Warm-Ups/Exit Cards
- LinkIt diagnostics
- IXL diagnostic
- iReady diagnostics
- EdPuzzle

Lesson Plans	
Lesson	**Time Frame**
Lesson 1: **Operations with Fractions**	**4 days**
Lesson 2: **Operations with Decimals**	**4 days**
Lesson 3: **Integers**	**4 days**
Teacher Notes: Be prepared to revisit foundational number sense and operations regularly. Hands-on tools, visuals, and repetition will help solidify key concepts for students who may have gaps dating back to earlier grades.	
Curriculum Development Resources/Technology Resources: Online Textbook: Big Ideas Math LinkIt IXL iReady EdPuzzle Google Classroom https://tasks.illustrativemathematics.org/content-standards https://www.desmos.com/ https://nj.digitalitemlibrary.com/home https://resources.newmeridiancorp.org/released-items/ https://nj.mypearsonsupport.com/practice-tests/math/	



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Lesson Plan 1 Template		
Content Area: Math	Lesson Title: Operations with Fractions	Time Frame: 4 days

Lesson Components

21st Century Themes

√Global Awareness √Financial, Economic, Business and Entrepreneurial Literacy
√Civic Literacy ☐ Health Literacy

21st Century Skills

√Creativity and Innovation √Critical Thinking and Problem Solving ☐ Information Literacy
√Life and Career Skills √Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Convert between improper fractions and mixed numbers • Determine the factors of a number • Determine the LCM or GCF of a set of numbers • Compute in all operations using fractions • Understand and model fraction addition, subtraction, multiplication, and division using visual representations. • Develop strategies to find common denominators and	Lesson Sequence 1. Begin with a quick number sense warm-up: compare and order a few fractions using number lines or benchmark fractions (e.g., ½, ¼, ¾). 2. Use visuals (fraction strips or circles) to review key concepts: equivalent fractions, improper fractions, and mixed numbers. 3. Introduce or review addition and subtraction of fractions with like denominators using real-world contexts (e.g., recipes, time).	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards

simplify fractions accurately. • Apply operations with fractions to solve real-world and contextual problems. • Explain their reasoning using models, precise vocabulary, and step-by-step strategies. • Identify and correct common errors in fraction operations.	4. Progress to unlike denominators: model finding common denominators using area models or fraction bars. 5. Practice solving addition/subtraction problems in pairs with visual aids and step-by-step checklists. 6. Introduce multiplication of fractions using area models (e.g., "What is ½ of ¾?"). 7. Model and practice interpreting multiplication in context (e.g., scaling, parts of a whole). 8. Introduce fraction division conceptually (e.g., "How many ¼s in 2?"), using visuals and repeated subtraction or tape diagrams. 9. Practice solving problems using sentence frames for explanation (e.g., "I found the reciprocal of ____ because..."). 10. Focus on error analysis: students review incorrect examples and explain/correct them. 11. End with a group discussion or reflection prompt: "Which operation is hardest and why? What helped it make more sense today?"	

Differentiation:
The fractions do not have to be the same value for all students. For example some students can practice the skill by adding $\frac{1}{2} + \frac{3}{4}$ whereas others can compute $\frac{3}{4} + \frac{1}{6}$. In the first scenario, the

student determines that the LCM is 4 and is only required to rename the first fraction. In the second scenario, the student needs to determine the LCM but must rename both fractions. The goal is for the student to be able to compute using fractions, however, the degree of difficulty can vary for each student.

Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.
Grouping – Pair students during partner activities so they can explain what they know to each other.
Independent work – Circulate and assist and provide additional support for the students who need it, provide small group instruction when needed.
Technology – For students who finish early, allow them to complete appropriate internet activities to practice in a different environment to extend learning.
Additional supports:

- Use concrete manipulatives (fraction strips, circles, and tiles) for students needing visual support.
- Provide pre-labeled models for students who struggle with drawing accurate representations.
- Offer worked examples with step-by-step annotations for students to reference.
- Create partner roles (e.g., one student models, the other explains) to encourage verbal processing and peer teaching.
- For advanced students, introduce mixed operations and multi-step word problems with real-world scenarios.
- Allow students to demonstrate understanding using multiple methods (drawings, verbal explanations, equations).
- Use sentence frames to support mathematical communication (e.g., "I added the numerators because the denominators were the same...").
- Group students flexibly based on readiness (e.g., comfort with common denominators vs. conceptual understanding of division).
- Provide digital tools or fraction calculators to support computation if needed.

Resources Provided:
Handouts; data from the NJSLA, iReady, IXL, and LinkIt



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Lesson Plan 2 Template		
Content Area: Math	Lesson Title: Operations with Decimals	Time Frame: 4 days

Lesson Components

21st Century Themes

√Global Awareness √Financial, Economic, Business and Entrepreneurial Literacy
□ Civic Literacy □ Health Literacy

21st Century Skills

□ Creativity and Innovation √Critical Thinking and Problem Solving □ Information Literacy
√Life and Career Skills √Communication and Collaboration □ Media Literacy □ ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Use place value understanding to accurately add, subtract, multiply, and divide decimals. • Visualize decimal operations using models such as grids or base-ten blocks. • Solve real-world problems involving decimal operations with appropriate estimation and precision. • Communicate their process and reasoning using correct decimal alignment and terminology.	Lesson Sequence 1. Warm-up: Estimation challenge — approximate the answer to a decimal operation (no calculators). 2. Use base-ten blocks or grids to review place value and visualize decimals. 3. Review addition and subtraction of decimals, emphasizing lining up place values and estimating reasonableness. 4. Model real-world examples (e.g., money, measurements), asking students to create their	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards

• Analyze and correct errors related to decimal operations and place value misalignment.	own examples in partners. 5. Introduce multiplication of decimals using area models or place value reasoning (e.g., 0.3 × 0.2). 6. Scaffold multiplication with whole numbers first, then decimals × whole, and finally decimals × decimals. 7. Practice multiplying in pairs or triads, using a "Think, Solve, Explain" protocol. 8. Model division of decimals: first dividing by whole numbers, then dividing decimals by decimals. 9. Use place value charts or models to show movement of the decimal point during division. 10. Include word problems with a focus on context clues: What operation is needed and why? 11. Small group fluency practice with error analysis and peer teaching. 12. Reflect as a group: "How does understanding place value help with decimals?"	

Differentiation:
The decimals do not have to be the same value for all students. For example,a student can practice the skill by adding $3.1 + 4.2$ whereas another student can compute $3.42 + 0.6$. In the first scenario, the student does not have to regroup. In the second scenario, the student needs to accurately line up the

decimals and must regroup. The goal is for the student to be able to compute using decimals, however, the degree of difficulty can vary for each student.

Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.
Grouping – Pair students during partner activities so they can explain what they know to each other.
Independent work – Circulate and assist and provide additional support for the students who need it, provide small group instruction when needed.
Technology – For students who finish early, allow them to complete appropriate internet activities to practice in a different environment to extend learning.
Additional supports:

- Use decimal grids or base-ten block visuals to support conceptual understanding of place value.
- Highlight or color-code place value positions in written problems to reduce visual processing demands.
- Offer scaffolded notes with partially completed steps for solving operations.
- Include real-life contexts (e.g., money, measurements) to build relevance and engagement for concrete thinkers.
- Allow use of calculators for computation after concept is demonstrated to focus on application.
- Provide tiered practice tasks — some focusing on computation, others on word problems and reasoning.
- Use mini-whiteboards for low-stakes practice and immediate feedback in small groups.
- Pair students strategically: one explains the place value strategy, the other solves.
- Use Tier 2 intervention time to re-teach foundational place value skills for students with persistent misunderstandings.

Resources Provided:
Handouts; data from the NJSLA, iReady, IXL, and LinkIt



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Lesson Plan 3 Template		
Content Area: Math	Lesson Title: Integers	Time Frame: 4 days

Lesson Components

21st Century Themes

√ Global Awareness √ Financial, Economic, Business and Entrepreneurial Literacy
□ Civic Literacy √ Health Literacy

21st Century Skills

√ Creativity and Innovation √ Critical Thinking and Problem Solving □ Information Literacy
√ Life and Career Skills √ Communication and Collaboration □ Media Literacy □ ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Identify the opposite of a number • Graph integers on a number line • Compare and order a set of rational numbers • Determine the absolute value of a number • Graph coordinates in the coordinate plane • Compute in all operations using integers • Understand and represent positive and negative integers on a number line. • Apply rules for adding, subtracting, multiplying,	Lesson Sequence 1. Warm-up: Temperature talk — compare two temperatures (e.g., -5°F vs 10°F). Use real-world situations. 2. Introduce integer rules with a vertical number line or thermometer visual: above and below zero. 3. Explore opposites and absolute value through movement games (e.g., steps forward/backward). 4. Model adding integers with counters or number line hops.	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards • Coordinate Graph Art

and dividing integers using models and patterns. • Interpret integer operations in real-world contexts (e.g., temperature, elevation, finances). • Use tools like number lines, counters, and visuals to justify their thinking. • Recognize and explain the concept of absolute value and the role of opposites.	5. Group practice: students solve integer addition problems and explain with visuals. 6. Introduce subtraction as "adding the opposite"; demonstrate using models and scenarios. 7. Use sentence stems like "To subtract, I changed it to adding the opposite because..." 8. Scaffold practice with a card game or sorting activity: match problems with models or number line diagrams. 9. Introduce multiplication and division of integers using patterns (e.g., "What happens to the product as one factor becomes negative?"). 10. Small group challenge: students explain why a negative × negative = positive using models or patterns. 11. Error analysis: students fix common mistakes and justify their thinking. 12. Small group challenge: create a list of health related rational and irrational numbers for students to round to meaningful integers. (E.g. A doctor recommends to take around $\sqrt{5}$ milligrams	

	of iron. Round to the nearest integer.) 13. Close with a check-in: "What part of working with integers is still confusing?" Use responses to plan next steps.	

Differentiation:

The integers do not have to be the same value for all students. For example, for one student they can practice the skill by multiplying -3 x 3 whereas another can compute – 33×12. In the first scenario, the student practices the rules for multiplying integers but is not burdened by heavy computations. In the second scenario, the student practices the rules for multiplying integers but also is challenged through a 2-digit by 2-digit computation. The goal is for the student to be able to compute using integers, however, the degree of difficulty can vary for each student.

Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.

Grouping – Pair students during partner activities so they can explain what they know to each other.

Independent work – Circulate and assist and provide additional support for the students who need it, small group instruction when needed.

Technology – For students who finish early, allow them to complete appropriate internet activities to practice in a different environment to extend learning.

Additional supports:

- Use number lines (vertical and horizontal) and integer chips for hands-on exploration.
- Incorporate movement (e.g., stepping forward/back) to physically model positive and negative values.
- Provide visuals and vocabulary banks for students unfamiliar with terms like "absolute value" or "opposite."
- Break down operations into smaller steps using color coding (e.g., circling signs before solving).
- Encourage peer modeling of integer rules and reasoning using student-led examples.
- Use scaffolds such as "I Do, We Do, You Do" for rule-based tasks (e.g., multiplication patterns).
- Allow students to explain patterns with pictures or manipulatives before moving to symbolic representation.
- Differentiate by complexity: some students solve problems with one operation, others with multiple steps or equations.
- Group students by conceptual understanding (e.g., comparing integers vs. operating with them) and rotate based on progress.

Resources Provided:

Handouts; data from the NJSLA, iReady, IXL, and LinkIt



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly, Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging **Strongly** and require higher order thinking and problem solving skills	X	☐	☐
Allow for student choice	X	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	X	☐	☐
Integrate global perspectives	☐	X	☐
Integrate 21st century skills	X	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	X	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	X	☐	☐
Are varied to address different student learning styles and preferences	X	☐	☐
Are differentiated based on student needs	X	☐	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	X	☐	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	X	☐	☐
Provide opportunities for student reflection and self- assessment	☐	X	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	X	☐	☐

Curriculum Design Template

Content Area: Math	**Grade Level:** 6	**Unit Title:** Grade 6 Lab
Created: 2025	**Board Approved on:**	



Unit Overview Template

Content Area: Math **Grade Level:** 7 **Unit Title:** Grade 7 Lab

Unit Summary: Students in Grade 7 Math Lab will deepen their understanding of proportional reasoning, rational numbers, geometry, and data analysis through scaffolded, small-group instruction. They will build on prior knowledge to solve multi-step problems involving ratios, rates, and percents, including real-world applications like discounts, tax, interest, and tips. Students will expand their number sense to include all rational numbers, developing fluency with operations involving positive and negative values in context. They will apply this understanding to write, simplify, and solve linear expressions and equations. In geometry, students will explore scale drawings, area, surface area, and volume of two- and three-dimensional shapes, and reason about angles and cross-sections in composite figures. Finally, they will investigate data through sampling, compare data sets, and make informal inferences about populations. Throughout the year, instruction will emphasize conceptual understanding, visual models, and multiple strategies to support students who need additional time and practice to master grade-level standards.

Primary Interdisciplinary Connections: *Science and Engineering*

21st Century Themes √Creativity and Innovation √Critical Thinking and Problem Solving √ICT Literacy √Information Literacy √Life and Career Skills √Communication and Collaboration √Media Literacy

Unit Rationale: Seventh grade math introduces students to more abstract concepts and multi-step problem solving, making it a critical time to strengthen reasoning and fluency. This course offers targeted support with proportional relationships, rational number operations, expressions, equations, geometry, and data, helping students bridge conceptual gaps while applying skills in real-world contexts. Through focused instruction and collaborative learning, students build the confidence and understanding needed to meet grade-level expectations and prepare for more advanced math.

Career Readiness (Standard 9):

9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential.
9.2.8.CAP.19: Relate academic achievement, as represented by high school diplomas, college degrees, and industry credentials, to employability and to potential level
9.4.8.CT.1: Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective (e.g., MS-ETS1-2).
9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.
9.4.8.IML.7: Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a)
9.4.8.TL.3: Select appropriate tools to organize and present information digitally.
9.4.8.TL.5: Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration.

Learning Targets	
Standards: 7.RP, 7.NS, 7.EE, 7.G, 7.SP	
Content Statements: Analyze proportional relationships and use them to solve real-world and mathematical problems; Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers; Use properties of operations to generate equivalent expressions; Solve real-life and mathematical problems using numerical and algebraic expressions and equations; Draw, construct and describe geometrical figures and describe the relationships between them; Solve real-life and mathematical problems involving angle measure, area, surface area, and volume; Use random sampling to draw inferences about a population; Draw informal comparative inferences about two populations; Investigate chance processes and develop, use, and evaluate probability models.	
CPI#:	**Cumulative Progress Indicator (CPI):**
7.RP.A.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks ½ mile in each ¼ hour, compute the unit rate as the complex fraction (½) / (¼) miles per hour, equivalently 2 miles per hour.
7.RP.A.2	Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pm$. d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.
7.NS.A.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. For example, in the first round of a game, Maria scored 20 points. In the second round of the same game, she lost 20 points. What is her score at the end of the second round? b. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive

	inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.
7.NS.A.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)
7.EE.A.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.EE.A.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."
7.EE.B.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9¾ inches long in the center of a door that is 27½ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

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. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms with accuracy and efficiency. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.
7.G.A.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.G.A.2	Draw (with technology, with ruler and protractor, as well as freehand) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
7.G.A.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
7.G.B.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
7.G.B.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
7.G.B.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
7.SP.A.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
7.SP.A.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

7.SP.B.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.
7.SP.B.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.
7.SP.C.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
7.SP.C.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.
7.SP.C.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?
7.SP.C.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.

	c. Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?
MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Unit Essential Questions:

- How do I apply the distributive property and combine like terms to simplify expressions?
- How do I solve one- and two-step equations and inequalities?
- How can proportional reasoning help us solve real-world problems involving rates, percents, and scale?
- What strategies can we use to make sense of operations with rational numbers, including negative values?
- How do we use expressions and equations to represent and solve problems?
- How does geometry help us understand shapes, space, and measurement in two and three dimensions?
- In what ways can data be collected, represented, and interpreted to make informed decisions?

Unit Enduring Understandings:

- Applying the distributive property
- Combining like terms
- Solving one and two step equations and inequalities
- Proportional relationships describe constant ratios between quantities and can be used to solve problems involving percents, scale, and real-world applications.
- Rational numbers include positive and negative values, and operations on them follow consistent rules that can be applied in various contexts.
- Algebraic expressions and equations provide a structured way to model relationships and solve problems efficiently.
- Geometry connects shapes, measurements, and spatial reasoning, allowing us to solve problems involving area, surface area, volume, and similarity.
- Data collected through samples can be used to draw inferences about larger populations and compare variability across different groups.

Unit Learning Targets:

Students will simplify expressions by applying the distributive property and combining like terms; solve one and two step equations and inequalities. Students will extend their understanding of ratios and proportional relationships to solve multi-step problems involving percents, rates, and scale drawings. They will develop fluency with operations on all rational numbers—including negative values—and apply these skills to real-world contexts. Students will learn to write, simplify, and evaluate expressions and equations, using variables to represent quantities and solve one-step and multi-step problems. They will explore geometry concepts by analyzing scale, area, surface area, and volume, and by reasoning about angle relationships and cross-sections in composite figures. In statistics, students will generate data through sampling, compare data distributions, and interpret measures of center and variability to draw informal conclusions about populations. Through focused,

small-group instruction and hands-on practice, students will strengthen their conceptual understanding and build the confidence needed to meet grade-level expectations.

- Climate change examples:
  - Students may solve real-world problems involving the four operations with rational numbers related to the relationship between altitude and the temperature above sea level.
  - Students may solve multi-step real-life problems posed with positive and negative rational numbers in any form related to the relationship between altitude and the temperature above sea level.
  - Students may solve real-world problems involving area, surface area, and volume related to deforestation and increasing livestock farming as key contributors to climate change.

Evidence of Learning

Summative Assessment: Ongoing

Equipment Needed: iPads, notebooks

Teacher Resources:

- Online Textbook: Big Ideas Math
- Google Classroom
- LinkIt
- IXL
- iReady Toolkit

Formative Assessments:

- Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments
- Math Games
- Warm-Ups/Exit Cards
- LinkIt diagnostics
- IXL diagnostic
- iReady diagnostics
- EdPuzzle

Lesson Plans	
Lesson	**Time Frame**
Lesson 1: **Simplifying Expressions**	**4 days**
Lesson 2: **Solving Equations**	**4 days**
Lesson 3: **Solving Inequalities**	**4 days**
Teacher Notes: Prioritize conceptual understanding over procedural fluency early in each topic, especially when working with rational numbers and proportional relationships, as many students will benefit from visual models and real-world examples.	
Curriculum Development Resources/Technology Resources: Online Textbook: Big Ideas Math LinkIt IXL iReady EdPuzzle Google Classroom https://tasks.illustrativemathematics.org/content-standards https://www.desmos.com/ https://nj.digitalitemlibrary.com/home https://resources.newmeridiancorp.org/released-items/ https://nj.mypearsonsupport.com/practice-tests/math/	



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Lesson Plan 1 Template		
Content Area: Math	Lesson Title: Simplifying Expressions	Time Frame: 4 days

Lesson Components

21st Century Themes

√Global Awareness √Financial, Economic, Business and Entrepreneurial Literacy
□ Civic Literacy √Health Literacy

21st Century Skills

√Creativity and Innovation √Critical Thinking and Problem Solving □ Information Literacy
√Life and Career Skills √Communication and Collaboration □ Media Literacy √ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Simplifying arithmetic expressions by applying order of operations • Simplify algebraic expressions by applying the distributive property and combining like terms • Use properties of operations (distributive, associative, commutative) to simplify expressions. • Combine like terms to rewrite expressions in simpler or equivalent forms. • Identify and explain equivalent expressions	Lesson Sequence 1. Begin with a warm-up identifying like terms (e.g., matching terms with same variables and exponents). 2. Use color-coding or highlighting to identify like terms in a sample expression. 3. Review properties of operations with quick examples (focus on distributive property). 4. Model combining like terms step-by-step with think-aloud. 5. Practice simplifying expressions with increasing complexity, moving from 2 to 3	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards

in written and visual formats. • Apply simplification in the context of real-world problems.	terms, then including negative coefficients. 6. Use matching cards: students match original expressions with their simplified equivalents. 7. Apply simplification to word problems (e.g., perimeter or cost expressions). 8. Ask students to write examples of expressions related to health (e.g. expressions that represent the number of times in a week someone exercises). 9. Reflect with a group discussion: "How do we know when an expression is fully simplified?"	

Differentiation:

The degree of difficulty can be varied for all students. For a student that needs additional supports, they can answer questions such as $(10 - 4)^2 + 4$. For other students, they can answer questions such as $((24 - 10)^2 + 4) \times 2$. In the first problem, there are 3 numbers and 4 operators. The numbers are also small enough that they are manageable. In the second problem, there are 4 numbers and 5 operators. There are nestled brackets and heavier computations as well. These problems can also take sufficient time and therefore it would be appropriate to allow one student to demonstrate the concepts over 5 problems whereas another student may complete 10 problems in the same amount of time.

Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.
Grouping – Pair students during partner activities so they can explain what they know to each other.
Independent work – Circulate and assist and provide additional support for the students who need it, provide small group instruction when needed.
Technology – For those students, who finish early; allow them to complete appropriate internet activities to practice in a different environment to extend learning.
Additional Supports:

- Provide color-coded expression cards for students who need visual support.
- Use manipulatives like algebra tiles to model combining like terms.

- Offer scaffolds like partially simplified expressions for students to complete.
- Challenge advanced students with expressions involving multiple variables or nested distributive property.
- Provide sentence stems to explain steps (e.g., "I combined ____ and ____ because they are like terms...").
- Use Tier 2 grouping to revisit the distributive property explicitly as needed.

Resources Provided:

Handouts; data from the NJSLA, iReady, IXL, and LinkIt



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Lesson Plan 2 Template		
Content Area: Math	Lesson Title: Equations	Time Frame: 4 days

Lesson Components

21st Century Themes

□ Global Awareness √Financial, Economic, Business and Entrepreneurial Literacy
□ Civic Literacy □ Health Literacy

21st Century Skills

√Creativity and Innovation √Critical Thinking and Problem Solving □ Information Literacy
√Life and Career Skills √Communication and Collaboration □ Media Literacy √ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Solve one- and two-step linear equations with rational coefficients. • Understand and apply inverse operations to isolate the variable. • Justify each step in solving an equation using properties of equality. • Check solutions by substituting the value back into the original equation.	Lesson Sequence 1. Review: One-Step Equations 2. Warm-up: match inverse operations (e.g., multiplication/division, addition/subtraction). 3. Use balance scale visual or drawing to introduce the concept of equality. 4. Model solving one-step equations, emphasizing inverse operations and "doing the same to both sides."	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards

	5. Transition to two-step equations with clear annotation of steps. 6. Use dry-erase boards for group practice and immediate feedback. 7. Partner activity: "Solve & Swap" — students solve, then swap equations and check each other's work. 8. Apply equation solving to real-world scenarios (e.g., solving for cost or distance). 9. End with an error analysis exercise and a group discussion on what went wrong and how to fix it.	

Differentiation:
Students can work with different rational numbers depending on their skills and understanding (i.e., equations can include whole numbers, fractions, or decimals)

Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.
Grouping – Pair students during partner activities so they can explain what they know to each other.
Independent work – Circulate and assist and provide additional support for the students who need it, provide small group instruction when needed.
Technology – For students, who finish early; allow them to complete appropriate internet activities to practice in a different environment to extend learning.

Additional supports:

- Provide equation mats or balance visuals for concrete learners.
- Scaffold with "cover and reveal" step-by-step equation solving templates.
- Use differentiated equation sets (e.g., only positive coefficients vs. rational numbers).
- Allow use of manipulatives (e.g., algebra tiles or two-pan balances) to model equations.
- Encourage peer tutoring within groups, assigning roles (solver, checker, explainer).
- Use highlighter tape or color coding to isolate constants and variable terms.

Resources Provided:
Handouts; data from the NJSLA, iReady, IXL, and LinkIt



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Lesson Plan 3 Template		
Content Area: Math	Lesson Title: Inequalities	Time Frame: 4 days

Lesson Components

21st Century Themes

√Global Awareness √Financial, Economic, Business and Entrepreneurial Literacy
□ Civic Literacy □ Health Literacy

21st Century Skills

□ Creativity and Innovation √Critical Thinking and Problem Solving □ Information Literacy
√Life and Career Skills √Communication and Collaboration □ Media Literacy √ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Solve one- and two-step inequalities using inverse operations. • Graph the solution set of an inequality on a number line. • Understand that inequalities represent a range of possible solutions. • Apply inequality reasoning to real-life contexts (e.g., budgets, time limits).	Lesson Sequence 1. Review of Inequality Symbols, Meaning & Graphing 2. Warm-up: compare numbers and review inequality symbols (<, >, ≤, ≥). 3. Connect solving equations to solving inequalities — "same process, new rule." 4. Emphasize the rule about reversing the inequality when multiplying/dividing by a negative. 5. Model solving and graphing one-step inequalities with a number line.	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards

	6. Move to two-step inequalities with verbal explanation of each step. 7. Use scenarios (e.g., "You need at least $20 to buy lunch. Write and solve the inequality.") 8. Group activity: students sort inequality cards into categories (correct/incorrect solution or graph). 9. Reflect and explain: "What does the graph of the solution show us that the inequality alone does not?"	

Differentiation:
Students can work with different rational numbers depending on their understanding (i.e., equations can include whole numbers, fractions, or decimals)

Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.
Grouping – Pair students during partner activities so they can explain what they know to each other.
Independent work – Circulate and assist and provide additional support for the students who need it, provide small group instruction when needed.
Technology – For students, who finish early; allow them to complete appropriate internet activities to practice in a different environment to extend learning.

Additional supports:

- Provide foldables or visual notes for inequality symbols and graphing rules.
- Use open number lines with labeled endpoints for students to mark and shade.
- Include sentence stems for interpreting solutions (e.g., "This solution means I can have ____ or more...").
- Scaffold by limiting variable types or coefficients until students build confidence.
- Offer enrichment with compound inequalities or contextual reasoning problems.
- Use peer modeling to demonstrate proper graphing and interpretation.

Resources Provided:
Handouts; data from the NJSLA, iReady, IXL, and LinkIt



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly, Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging **Strongly** and require higher order thinking and problem solving skills	X	☐	☐
Allow for student choice	X	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	X	☐	☐
Integrate global perspectives	☐	☐	X
Integrate 21st century skills	X	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☐	X	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☐	X	☐
Are varied to address different student learning styles and preferences	X	☐	☐
Are differentiated based on student needs	X	☐	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	X	☐	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	X	☐	☐
Provide opportunities for student reflection and self- assessment	X	☐	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	X	☐	☐

Curriculum Design Template

Content Area: Math	**Grade Level:** 7	**Unit Title:** Grade 7 Lab
Created: 2025	**Board Approved on:**	



Unit Overview Template

Content Area: Math **Grade Level:** 8 **Unit Title:** Grade 8 Lab

Unit Summary: In Grade 8 Math Lab, students deepen their understanding of algebra, functions, geometry, and data through scaffolded support and targeted instruction. They use linear equations and systems of equations to model and solve real-world and mathematical problems, interpreting slope and intercepts in context and connecting proportional relationships to linear graphs. Students extend their algebraic reasoning by analyzing relationships in bivariate data and developing strategies for solving equations logically and efficiently. They build foundational understanding of functions as rules that assign each input a single output, exploring multiple representations—tables, graphs, and equations—to describe and compare functional relationships. In geometry, students analyze two- and three-dimensional figures using transformations, angle relationships, and concepts of similarity and congruence. They apply the Pythagorean Theorem to solve problems involving distance, length, and area in the coordinate plane. Students also complete their study of volume by solving problems involving cones, cylinders, and spheres. Throughout the year, Math Lab emphasizes conceptual clarity, multiple strategies, and real-world connections to support students in mastering 8th grade standards at their own pace.

Primary Interdisciplinary Connections: *Science and Engineering*

21st Century Themes √Creativity and Innovation √ Critical Thinking and Problem Solving √ICT Literacy √Information Literacy √Life and Career Skills √Communication and Collaboration √Media Literacy

Unit Rationale: Eighth grade math lays the foundation for high school algebra and geometry, emphasizing abstract thinking, algebraic modeling, and geometric reasoning. This course supports students in mastering core concepts such as linear equations, functions, transformations, the Pythagorean Theorem, and volume, while reinforcing their ability to interpret and apply math in meaningful contexts. With small-group instruction and a focus on multiple representations, students are guided toward deeper understanding and readiness for success in high school mathematics.

Career Readiness (Standard 9):

9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential.
9.2.8.CAP.19: Relate academic achievement, as represented by high school diplomas, college degrees, and industry credentials, to employability and to potential level
9.4.8.CT.1: Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective (e.g., MS-ETS1-2).
9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.
9.4.8.IML.7: Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a)
9.4.8.TL.3: Select appropriate tools to organize and present information digitally.
9.4.8.TL.5: Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration.

Learning Targets	
Standards: 8.NS, 8.EE, 8.F, 8.G, 8.SP	
Content Statements: Know that there are numbers that are not rational and approximate them by rational numbers, and understand properties of rational and irrational numbers; Work with radicals and integer exponents; Understand the connections between proportional relationships, lines, and linear equations; Analyze and solve linear equations and pairs of simultaneous linear equations; Define, evaluate, and compare functions; Use functions to model relationships between quantities; Understand congruence and similarity using physical models, transparencies, or geometry software; Understand and apply the Pythagorean Theorem; Solve real-world and mathematical problems involving volume of cylinders, cones and spheres; Investigate patterns of association in bivariate data.	
CPI#:	**Cumulative Progress Indicator (CPI):**
8.NS.A.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually and convert a decimal expansion which repeats eventually into a rational number.
8.NS.A.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.
8.NS.A.3	Understand that the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.
8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = \frac{1}{3^3} = \frac{1}{27}$.
8.EE.A.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$ where p is a positive rational number. a. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational. b. Simplify numerical radicals, limiting to square roots (i.e. nonperfect squares). For example, simplify $\sqrt{8}$ to $2\sqrt{2}$.
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. For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9 and determine that the world population is more than 20 times larger.
8.EE.A.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

8.EE.B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
8.EE.B.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.
8.EE.C.7	Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
8.EE.C.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables using the substitution method and estimate solutions by graphing the equations. Solve simple cases by inspection. For example: by inspection, conclude that $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6. Solve $3x + y = 30$ and $y = 2x$ using the substitution method; Solve $y = 3x + 1$ and $y = -2x + 7$ using the substitution method. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.
8.F.A.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Clarification: Function notation is not required in Grade 8)
8.F.A.2	Compare properties (e.g. rate of change, intercepts, domain and range) of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
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. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not

	linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
8.F.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.B.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
8.G.A.1	Verify experimentally the properties of rotations, reflections, and translations: a. Lines are transformed to lines, and line segments to line segments of the same length. b. Angles are transformed to angles of the same measure. c. Parallel lines are transformed to parallel lines.
8.G.A.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.A.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.
8.G.B.6	Explain a proof of the Pythagorean Theorem and its converse.
8.G.B.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8.G.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
8.G.C.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
8.SP.A.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP.A.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association,

	informally fit a straight line, and informally assess the model fit (e.g. line of best fit) by judging the closeness of the data points to the line.
8.SP.A.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.
8.SP.A.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?
MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Unit Essential Questions:

- How can linear equations and systems be used to model and solve real-world problems?
- What is a function, and how can we use different representations to understand and describe relationships between variables?
- How do transformations, congruence, and similarity help us analyze and describe geometric figures?
- In what ways does the Pythagorean Theorem connect geometry and algebra to solve problems in the coordinate plane?
- How can volume formulas be applied to solve problems involving three-dimensional shapes?

Unit Enduring Understandings:

- Linear equations and systems of equations can represent patterns and relationships in real-world situations, and their solutions reveal key information such as rates of change and points of intersection.
- A function defines a consistent relationship between inputs and outputs, and can be represented using equations, tables, graphs, and verbal descriptions.
- Geometric transformations preserve or change the properties of shapes in predictable ways, and help establish the concepts of congruence and similarity.
- The Pythagorean Theorem is a powerful tool for solving problems involving distance and measurement in both geometric figures and coordinate space.
- Volume formulas allow us to solve problems involving real-world three-dimensional objects like cylinders, cones, and spheres.

Unit Learning Targets:

Students will develop fluency in solving and analyzing linear equations and systems of equations, using them to model relationships and solve contextual problems. They will explore the concept of a function as a rule that assigns exactly one output to each input, and describe how functions behave using tables, graphs, and equations. Students will use rigid transformations and dilations to explore

congruence and similarity, applying these ideas to analyze shapes and solve problems. They will understand and apply the Pythagorean Theorem and its converse to find unknown side lengths and distances on the coordinate plane. Finally, they will apply volume formulas to solve problems involving cylinders, cones, and spheres. Throughout the unit, students will build confidence through hands-on models, visual reasoning, and structured problem-solving strategies that connect algebraic and geometric thinking.

- Climate change examples:
  - Students may use the formula for the volume of a sphere to approximate the volume of hailstones to consider how climate change may affect the size of hailstones over time.
  - Students may construct and interpret scatterplots of measurement data to investigate patterns of association in bivariate data involving the amount of a greenhouse gas in the atmosphere and its effect on temperature.
  - Students may use the equation of a linear model to interpret the slope when comparing local and global precipitation rates for rainfall in different regions.

Evidence of Learning
Summative Assessment: Ongoing **Equipment Needed:** iPads, notebooks **Teacher Resources:** • Online Textbook: Big Ideas Math • Google Classroom • LinkIt • IXL • iReady Toolkit
Formative Assessments: • Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Math Games • Warm-Ups/Exit Cards • LinkIt diagnostics • IXL diagnostic • iReady diagnostics • EdPuzzle

Lesson Plans	
Lesson	**Time Frame**
Lesson 1: **Solving Systems of Equations**	**4 days**
Lesson 2: **Understanding Functions and Their Representations**	**4 days**
Lesson 3: **Applying the Pythagorean Theorem**	**4 days**
Teacher Notes: Students may struggle with abstraction, so consistently connect algebra and geometry to visual models, coordinate grids, and contextual problems to reinforce meaning and promote transfer to Algebra 1.	
Curriculum Development Resources/Technology Resources: Online Textbook: Big Ideas Math LinkIt IXL iReady EdPuzzle Google Classroom https://tasks.illustrativemathematics.org/content-standards	

https://www.desmos.com/
https://nj.digitalitemlibrary.com/home
https://resources.newmeridiancorp.org/released-items/
https://nj.mypearsonsupport.com/practice-tests/math/



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Plan 1 Template		
Content Area: Math	Lesson Title: Solving Systems of Equations	Time Frame: 4 days

Lesson Components

21st Century Themes

√Global Awareness √Financial, Economic, Business and Entrepreneurial Literacy
√Civic Literacy ☐ Health Literacy

21st Century Skills

√Creativity and Innovation √Critical Thinking and Problem Solving √Information Literacy
√Life and Career Skills √Communication and Collaboration √Media Literacy √ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Solve systems of two linear equations using graphing and substitution. • Identify the point of intersection as the solution to a system. • Interpret solutions in context (e.g., matching quantities, cost comparisons). • Recognize when a system has one solution, no solution, or infinitely many solutions.	Lesson Sequence 1. Warm-up: Review graphing linear equations in slope-intercept form. 2. Use a visual demonstration (graph intersection) to introduce the idea of a solution to a system. 3. Model solving systems by graphing (with grid paper or graphing tools). 4. Transition to substitution method with step-by-step examples. 5. Students work in pairs to match systems with	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards

	their solution type (one, none, or infinite). 6. Apply systems to word problems (e.g., comparing two cell phone plans). 7. Group discussion: "What does it mean when lines never cross? What if they're the same line?" 8. Create an example of a system of equations comparing the predicted revenue of two companies. 9. Reflect: Which method (graphing or substitution) feels clearer and why?	

Differentiation:
Provide guided notes with visual cues and margin prompts for students who need additional structure during direct instruction.

Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.
Grouping – Pair students during partner activities so they can explain what they know to each other.
Independent work – Circulate and assist and provide additional support for the students who need it, provide small group instruction when needed.
Technology – For those students who finish early, allow them to complete appropriate internet activities to practice in a different environment to extend learning.
Additional Supports:

- Provide graphing calculators or Desmos for students who struggle with plotting.
- Use color-coded equations to distinguish each line in graphing tasks.
- Offer structured substitution templates (fill in the blank style) for support.
- Assign systems with integer solutions before moving to rational ones.
- Enrich by introducing elimination method to advanced students or extending to 3-variable exploration.
- Use manipulatives or diagrams to represent real-world contexts visually.
- Use real-life role play (e.g., students act out roles in a word problem) to physically model and interpret solutions to systems.

Resources Provided:
Handouts; data from the NJSLA, iReady, IXL, and LinkIt



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Lesson Plan 2 Template	
Content Area: Math	Lesson Title: Understanding Functions and Their Representations
Time Frame: 4 days	

Lesson Components

21st Century Themes

√Global Awareness √Financial, Economic, Business and Entrepreneurial Literacy
√Civic Literacy √Health Literacy

21st Century Skills

√Creativity and Innovation √Critical Thinking and Problem Solving √Information Literacy
√Life and Career Skills √Communication and Collaboration √Media Literacy √ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Define a function as a rule assigning each input exactly one output. • Identify whether a relation is a function using tables, graphs, and mappings. • Translate between representations (verbal, table, graph, equation). • Interpret and describe behavior of functions in context (e.g., increasing/decreasing, linear/nonlinear).	Lesson Sequence 1. Warm-up: Identify input-output pairs and create a table from a given rule. 2. Define function using real-life analogies (e.g., vending machine: one input, one output). 3. Explore examples and non-examples using tables and mappings. 4. Model how to recognize a function on a graph (vertical line test). 5. Practice identifying and analyzing functions using cards or a digital tool.	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards

	6. Convert verbal rules into tables, then graphs, and finally equations. 7. Students match graphs to situations (e.g., constant speed, growing plant, cooling temperature, health habits, voting participation). 8. Exit ticket: Is it a function? Explain your reasoning with evidence.	

Differentiation:
Offer parallel tasks with varied levels of abstraction (e.g., concrete tables vs. abstract symbolic rules) to meet students where they are.
Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.
Grouping – Pair students during partner activities so they can explain what they know to each other.
Independent work – Circulate and assist and provide additional support for the students who need it, provide small group instruction when needed.
Technology – For those students who finish early, allow them to complete appropriate internet activities to practice in a different environment to extend learning.
Additional supports:

- Incorporate interactive card sorts (function vs. not a function) using self-checking or peer feedback methods.
- Use function machines or visual organizers for tactile/visual learners.
- Provide sentence starters: "This is a function because..." or "This is not a function because..."
- Scaffold with pre-completed tables or axes before full graphing.
- Allow use of digital graphing tools for students with graphing or motor difficulties.
- Enrich by comparing linear vs. nonlinear functions or piecewise functions.
- Offer alternate output representations (e.g., story-based, visual pattern growth).

Resources Provided:
Handouts; data from the NJSLA, iReady, IXL, and LinkIt



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Lesson Plan 3 Template		
Content Area: Math	Lesson Title: Applying the Pythagorean Theorem	Time Frame: 4 days

Lesson Components

21st Century Themes

☐ Global Awareness ✓Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

✓Creativity and Innovation ✓Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ✓Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:
Science and Engineering

Integration of Technology:
Online Textbook: Big Ideas Math
Google Classroom
LinkIt
IXL
iReady Toolkit

Equipment Needed:
iPads

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Understand and apply the Pythagorean Theorem to find missing side lengths in right triangles. • Use the converse of the theorem to determine if a triangle is a right triangle. • Apply the theorem in real-world and coordinate plane problems. • Explain why the theorem works using geometric reasoning.	Lesson Sequence 1. Warm-up: Identify right triangles and label legs/hypotenuse. 2. Use visual proof (e.g., square dissection or animation) to build conceptual understanding. 3. Introduce the formula $a^2 + b^2 = c^2$ with labeled triangle diagrams. 4. Model solving for a missing side with scaffolding. 5. Practice problems: basic, then move to coordinate plane problems (find distance).	• Classwork: warm up questions, worksheets, online activities, small group instruction, partner assignments • Games • Warm-Ups/Exit Cards

	6. Apply to real-life situations (e.g., ladder against a wall, diagonal of a rectangle). 7. Group challenge: use the converse to check if triangles are right based on side lengths. 8. Exit question: "How does the Pythagorean Theorem help you measure things you can't reach?"	

Differentiation:

Integrate physical tools like rulers and string to measure actual distances and connect abstract calculations to tangible outcomes.

Questioning – Know which questions are appropriate for each student to be able to answer. In this way, there can be active participation from the entire class.

Grouping – Pair students during partner activities so they can explain what they know to each other.

Independent work – Circulate and assist and provide additional support for the students who need it, provide small group instruction when needed.

Technology – For those students who finish early, allow them to complete appropriate internet activities to practice in a different environment to extend learning.

Additional supports:

- Provide triangle templates or grid paper to help students visualize side lengths.
- Use color-coded squares on each leg/hypotenuse to show visual square areas.
- Scaffold with calculation steps broken down (e.g., square, add, take square root).
- Allow calculators for square root approximations where needed.
- Enrich by applying the distance formula derived from the theorem.
- Use dynamic geometry software (e.g., GeoGebra) to let students experiment with triangle side lengths.
- Provide triangle diagrams with side lengths already labeled to reduce cognitive load for students with processing difficulties.

Resources Provided:

Handouts; data from the NJSLA, iReady, IXL, and LinkIt



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Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly, Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging **Strongly** and require higher order thinking and problem solving skills	X	☐	☐
Allow for student choice	☐	X	☐
Provide scaffolding for acquiring targeted knowledge/skills	X	☐	☐
Integrate global perspectives	☐	☐	X
Integrate 21st century skills	X	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☐	X	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	X	☐	☐
Are varied to address different student learning styles and preferences	X	☐	☐
Are differentiated based on student needs	X	☐	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	X	☐	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	X	☐	☐
Provide opportunities for student reflection and self- assessment	X	☐	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	X	☐	☐

Curriculum Design Template

Content Area: Math	**Grade Level:** 8	**Unit Title:** Grade 8 Lab
Created: 2025	**Board Approved on:**	

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Untimed tests
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book tests
Read test and directions to student
Provide study outline prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator and/or number line for math tests
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands
Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS MODIFICATIONS:

Breaks between tasks
Cue expected behavior
Daily feedback to student
Have contingency plans
Use de-escalating strategies
Use positive reinforcement
Use proximity/touch control
Use peer supports and mentoring
Model expected behavior by adults
Have parent sign homework
Have parent sign behavior chart
Set and post class rules
Chart progress and maintain data



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ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

IEP AND 504 ACCOMODATIONS AND MODIFICATIONS FOR MIDDLE AND HIGH SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
A locker with adapted lock
Review of directions
Review sessions
Use of mnemonics
Have student restate information
Provision of notes or outlines
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Weekly or bi-weekly home-school communication
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Lab and math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of tape recorder for lectures
Use of Interactive notebook
Use of a scribe
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Ability to type all assignments
Follow a routine/schedule
Teach time management and organizational skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Daily check-in with case manager or special education teacher
Adjusted assignment timelines
Visual daily schedule

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book or open-note tests
Read test and directions to student
Provide study guides prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Pace long-term projects
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Allow outlining, instead of writing for an essay or major project
Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator for math tests
Film or video supplements in place of reading text
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands

Pass/no pass option
Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS FOR STUDENTS:

Breaks between tasks
Cue expected behavior
Daily feedback to student
Have contingency plans
Use de-escalating strategies
Use positive reinforcement
Use proximity/touch control
Use peer supports and mentoring
Model expected behavior by adults
Have parent sign homework
Set and post class rules
Chart progress and maintain data



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Accommodations and Modifications for ESL Students

Give tests orally
Give instructions/directions in writing and orally
Assign a peer tutor, same language or English speaking
Allow use of bilingual/translation dictionary
Provide summaries of text or study guides of particular chapters
Allow errors in speaking
Allow errors in writing
Accept writing in first language
Highlight key vocabulary
Reduce amount of work required
Assess comprehension through demonstration or other alternative means (gestures, drawings)
Rephrase questions, directions, and explanations
Reduce multiple choices on assessments
Provide study guides and/ or outlines
Shorten reading assignments
Allow extended time for test/project completion
Use of audio books
Use of graphic organizers
Use reduced text, so that print is not dense
Use visuals/pictures throughout lesson/unit/assignemt
Adapt homework to reflect language proficiency/home support
Adapt homework to reflect home support
Provide hands-on activities and explanations
Allow extended time to answer questions, and permit drawing, as an explanation
Use of translation dictionaries to locate words in the native language
Use anecdotal records and portfolio of work as forms of assessment
Use story retellings to assess comprehension

Springfield Public Schools

Cultivating compassionate and extraordinary learners!

What Does the Gifted and Talented Experience Look Like?

Springfield Public Schools

Mission Statement

The Gifted and Talented Program of the Springfield Public Schools aims to provide a meaningful and rigorous education that instills the value of lifelong learning and empowers all students to reach their full potential and become self-fulfilled creative leaders in accordance with the comprehensive standards of our state. We accomplish this by offering challenging, real-world experiences in a student-centered environment.

We recognize that students come from diverse socioeconomic, cultural, and ethnic backgrounds, and the mission of the gifted and talented program is to provide opportunities for students to explore their intellectual, creative, and artistic gifts and talents within the classroom and with beyond-the-classroom experiences. It is essential to provide diverse, appropriate, and ongoing learning experiences and environments that incorporate students' academic, psychological, and social needs. Our responsibility is to provide students with educational alternatives that teach, challenge, and expand their knowledge, while simultaneously stressing the development of independent and self-directed learners who continuously generate questions, analyze, synthesize, and evaluate information and ideas.
New Jersey Administrative Code 6A:8-3.1 defines students who are gifted and talented as those students who possess or demonstrate high levels of ability in one or more content areas when compared to their chronological peers in the local district and who require modification of their educational program if they are to achieve in accordance with their capabilities.

Goals:

To support our mission, we have established the following goals to guide our work:

- ➢ To infuse into the general education program a broad range of activities for high-level learning that will challenge all students to perform at advanced levels, and provide extended opportunities, resources, and support in particular areas where student interest or talent is demonstrated.

- ➢ To provide a continuum of gifted education services that will strengthen the total school program, offer enriching and challenging learning opportunities for all students, and provide specialized learning experiences

- ➢ To promote achievement of students' best potentials and increased ability.

Through a productive and collaborative relationship among the building principals, classroom teachers, and the Gifted and Talented teacher, our schools can create programming that will enhance the learning experience for every student and serve the unique and specialized needs of students currently demonstrating gifted behaviors.

Elements of the Schoolwide Enrichment Model, W.I.N (What I Need), differentiated instruction, advanced classes, or individual programs into a student's regular instruction program are integral to this overarching framework for gifted education in the Springfield School District.

Reference Board Policy and Regulation 2464 – Gifted and Talented Pupils (M)

Early Childhood Center
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Schoolwide Virtual Enrichment

All first and second grade students have access to the Gifted and Talented Virtual Classroom. This virtual classroom is a space for students to complete various challenges and enrichment opportunities at their own pace. Students can receive feedback and additional adaptable resources to meet their individual learning needs. The virtual classroom design expands accessibility to enrichment resources and allows students to choose learning activities according to their unique interests and abilities. The purpose of the activities is to encourage problem-solving, develop critical thinking

skills, and expand curiosity and imagination. Activities are aligned to the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

The Gifted and Talented teacher serves as a resource to all teachers within Edward V. Walton School. Teachers seeking resources for their high-ability learners will receive additional support from the Gifted and Talented teacher in various ways. This support may include additional units of study, challenging resources, and student projects.

Elementary Schools
James Caldwell
Thelma L. Sandmeier

The goal is to engage small groups of students in intensive learning experiences through standards-based, rigorous, and relevant units of study that supplement, not supplant, the grade-level curriculum and support students' unique learning needs.

Enrichment Experience Grade 3

Beginning in third grade, the G&T teacher will cycle through all classrooms to work on problem-solving and enrichment tasks with students. Driven by assessment data, academic performance, student interest, and teacher observation, small groups of students will meet with the G&T teacher during W.I.N. (What I Need) periods throughout the week that the teacher is assigned to their classroom teacher. Groupings will be flexible and monitored to best meet each student's needs throughout the school year. Activities will include brain teasers, puzzles, strategic thinking, problem-solving, and STEM challenges.

Targeted Gifted and Talented Programing Grades 4-5

Students may become identified as Gifted and Talented in fourth grade. Students that are identified may receive support from the G&T Teacher for up to five periods (200 minutes) a week during W.I.N. (What I Need) periods. Identified students will meet to explore grade-level content while incorporating depth and complexity in a student-centered, problem-based environment. The Gifted and Talented Program aims to provide students with various advanced and challenging learning experiences across content areas to promote independent thinking skills, refine critical thinking and communication skills, cultivate joy in learning, and expand student interests through problem-solving. The instruction that students receive incorporates 21st Century Skills and advanced content that is challenging, hands-on, and relevant to the real world.

Strategies and Practices that Support Gifted and Talented Students

- Adjusted Pace of Lessons
- Inquiry-Based Instruction
- Higher-Order Thinking Activities
- Interest-Based Content
- Real World Problem Solving/Problem Based Learning
- Independent Study/Passion Projects
- Units of Study with Like-Minded Peers

Schoolwide Virtual Enrichment

All JCS and TLS students have access to grade level-specific Gifted and Talented Virtual Classrooms. These virtual classrooms are a space for students to complete various challenges and enrichment opportunities at their own pace. Students are able to receive feedback and additional opportunities based on their needs. The virtual classrooms have expanded the accessibility of enrichment resources directly to the students and allows for students to choose opportunities according to their interests and abilities. The purpose of the activities is to encourage problem solving, develop critical thinking skills, and expand curiosity and imagination in conjunction with the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

In addition to classroom support, the Gifted and Talented teacher also serves as a resource to all teachers in the building. Teachers that are seeking resources for their high ability learners will receive additional support from the Gifted and Talented teacher in various ways. This may include additional units of study, challenging resources, student projects, and meeting with the G&T teacher as needed.

Additional Enrichment Opportunities

Across all grade levels 3-5, as recommended by the classroom teacher, students exhibiting a need for additional enrichment may have the opportunity to meet with the G&T teacher as the schedule allows. Groupings will be flexible and monitored to best meet the students' needs throughout the school year. Activities will include, brain teasers, puzzles, strategic thinking activities, problem-solving challenges, and STEM challenges. Students engage in an extended process of asking questions, using resources, and developing answers that lead to thinking about what and how they are learning. Students are held accountable for how they work and use their time by demonstrating their learning through products or presentations.

Students self-select to participate in individual and/or group projects based on interest and commitment. The classroom teacher and/or the enrichment teacher will help guide and monitor student exploration of chosen topics, facilitating their learning with resources and teaching of needed skills.

Secondary Schools
Florence M. Gaudineer Middle School
Jonathan Dayton High School

Grades 6-12: Access to specific content programs with higher levels of academic challenges (i.e. Pre-Algebra, Accelerated Communication Arts, and Advanced Placement Classes)

Dual Credit Courses provide students the opportunity to obtain high school credit, and college credit, simultaneously through partnerships with several institutions.

Project Lead the Way (PLTW) students become builders of technology by engaging in real world activities. Students are empowered as design thinkers collaborating on real world projects.

Gifted and Talented Identification Criteria

The Springfield Schools Gifted and Talented Program recognizes that students require differentiated learning experiences beyond the core curriculum being taught because of their advanced abilities in one or more content areas. These students may also have other cognitive qualities such as curiosity, creativity, motivation, leadership, and passion that require modifications to their academic experience.

Multiple Measures of Eligibility

Kindergarten through grade twelve identification process for gifted and talented students includes multiple measures. Multiple measures may include but are not limited to: achievement test scores; grades; student performance or products; intelligence testing; parent, student, and/or teacher recommendation; and other appropriate measures. The identification methodology is developmentally appropriate, non-discriminatory, and related to the programs and services offered by the Springfield School District. The identification procedures are reviewed annually.

According to N.J.A.C. 6A:8-3.1, all public school districts must have a board-approved gifted and talented identification process and provide services for identified students enrolled in the grades of that school district. The regulations require that identification and services be made available to students in grades K-12.

When students are recommended for the Gifted and Talented Program there are multiple measures that are considered to determine if services are necessary and appropriate. The assessments used are as follows:

- *Cognitive Abilities Test (CogAT)*
- *Classroom Performance/Student Portfolios*
- *DRA2 Level*
- *iReady Diagnostic Scores*
- *Gifted Indicators Checklist*
- *Start Strong/NJSLA Assessment Data*

The N.J.A.C. requires that students be compared to their chronological peers in the local school district. The New Jersey Department of Education has not established state-level criteria for identifying students who are gifted, such as mandated tests or assessments, grade point averages, or IQ scores. Local school districts must use multiple measures to identify students.

Procedures
https://www.straussesmay.com/seportal/Public/DistrictPolicy.aspx?policyid=2464&id=b8a33a9f505e4998a6db3fb8e1de778b

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1 Point	2 Points	3 Points
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HOPE Teacher Rating Scale Raw Score: 11 - 29	HOPE Teacher Rating Scale Raw Score: 30 - 49	HOPE Teacher Rating Scale Raw Score: 50-66

Team meetings present the opportunity to review data and assess the educational needs of all students. Teacher provides examples of student work exhibiting above and beyond grade level expectations, creativity, leadership, critical and abstract thinking. Programs for gifted and talented students will be periodically evaluated for their continuing efficacy and adjusted accordingly. The parent of any student identified as gifted or talented shall be consulted regarding any program designed to address the student's particular needs.

Resource Links
https://riversideinsights.com/cognitive_abilities_test
https://www.curriculumassociates.com/programs/i-ready-learning
https://www.nj.gov/education/assessment/resources/
https://www.routledge.com/HOPE-Teacher-Rating-Scale-Involving-Teachers-in-Equitable-Identification/Gentry-Pereira-Peters-McIntosh-Fugate/p/book/9781618214522#:~:text=The%20HOPE%20Teacher%20Rating%20Scale,making%20it%20easy%20to%20use.

Gifted and talented student: The "*Strengthening Gifted and Talented Education Act*" defines a gifted and talented student as a "student who possesses or demonstrates a high level of ability in one or more content areas when compared to their chronological peers in the school district and who require modifications of their educational program if they are to achieve in accordance with their capabilities."

Twice-exceptional (2E) students: A twice-exceptional (2E) student is defined as "a student who is both gifted and a student with a disability. These students may also be referred to as having dual exceptionalities or as being gifted with learning disabilities (GT/LD). This also applies to students who are gifted with ADHD or gifted with autism" (New Jersey Association for Gifted Children, *www.nagc.org).*

Instructional adaptation: An adjustment or modification to instruction enabling a student who is gifted and talented to participate in, benefit from, and demonstrate knowledge and application of the New Jersey Student Learning Standards in one or more content areas at the instructional level of the student, not just the student's grade level.

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https://www.routledge.com/HOPE-Teacher-Rating-Scale-Involving-Teachers-in-Equitable-Identification/Gentry-Pereira-Peters-McIntosh-Fugate/p/book/9781618214522#:~:text=The%20HOPE%20Teacher%20Rating%20Scale,making%20it%20easy%20to%20use.

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