Wall Township Public Schools	Board Approval Date:
Course Title: WIS LLD Math	
Course Description: The WIS LLD Math curriculum is designed in a thematic approach that focuses on real life math skills and concepts that will be used for everyday functionality. Additionally, critical thinking skills necessary for academic, personal, and professional success will be stressed. Students will participate in a variety of activities, often life skills based, to demonstrate not just comprehension, but purpose.	

New Jersey Student Learning Standards

Vision for Mathematics Education in New Jersey

A New Jersey education in Mathematics builds quantitatively and analytically literate citizens prepared to meet the demands of college and career, and to engage productively in an information-driven society. All students will have access to a high-quality mathematics education that fosters a population that:

- leverages data in decision-making and as a lens for discussing, analyzing, and responding to practical questions.
- persists to make sense of and model problems arising in everyday life, society, and the workplace.
- thinks critically and strategically to assess quantitative relationships and to solutions to complex problems.
- employs precise reasoning and constructs viable arguments to deduce conclusions, recognize false statements and assess peers' reasoning.
- interprets, evaluates and critiques the mathematics embedded in social, scientific and commercial systems, as well as the claims made in the private and public sectors.
- communicates precisely when conveying, representing, and justifying both qualitative and quantitative perspectives.

Standards for Mathematical Practice*

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report Adding It Up: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

**See end of document for additional information related to the mathematical practices.*

Course Sequence & Pacing	
Unit Title	**Estimated Number of Instructional Periods**
Unit 1: Understanding Our Differences	10 weeks
Unit 2: My Community	10 weeks
Unit 3: Math that Matters	10 weeks
Unit 4: Jobs and Career Exploration	10 weeks
Unit 5: Technology and Daily Independent Living	10 weeks
Unit 6: Health, Wellness, and the Human Body	10 weeks
Unit 7: The Environment and Sustainability	10 weeks
Unit 8: Media Literacy	10 weeks

Unit 1

Desired Results

Unit 1 Title: Understanding Our Differences

Unit Summary: In this unit, students will use math as a tool to explore diversity inside and outside the classroom. Students will collect, graph, and analyze data. Students will utilize ratios, percentages, fractions, and decimals to show how numbers can represent similarities and differences in our community and in the world. Additionally, critical thinking to compare data fairly in order to avoid bias will be introduced.

Learning Standards

NJSLS:

- **6.RP.A.1 – Understand the concept of a ratio and use ratio language to describe relationships between two quantities.**
- **6.RP.A.2 – Understand the concept of a unit rate associated with ratios.**
- **6.RP.A.3 – Use ratio and rate reasoning to solve real-world and mathematical problems, including using tables, graphs, and percent relationships.**
- **6.NS.C.5 – Understand that positive and negative numbers are used to describe quantities having opposite directions or values.**
- **6.NS.C.6 – Understand a rational number as a point on the number line and extend number line understanding.**
- **6.NS.C.7 – Understand ordering and absolute value of rational numbers.**
- **6.NS.B.3 – Fluently add, subtract, multiply, and divide multi-digit decimals using standard algorithms.**
- **6.EE.A.1 – Write and evaluate numerical expressions involving whole-number exponents.**
- **6.EE.A.2 – Write, read, and evaluate expressions with variables.**
- **6.EE.B.5 – Understand solving equations or inequalities as a process of answering a question.**
- **6.EE.B.6 – Use variables to represent numbers and write expressions for real-world situations.**

- **6.EE.B.7 – Solve real-world and mathematical problems by writing and solving equations of the form x + p = q**

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- **9.4.5.DA.1 – Collect, organize, and interpret data sets to answer questions and make decisions.**
- **9.4.5.DA.2 – Use data to support conclusions and communicate results.**
- **9.4.5.DA.3 – Identify and evaluate data sources for accuracy and bias.**
- **9.4.5.IL.1 – Evaluate information for accuracy, credibility, and relevance.**
- **9.4.5.IL.2 – Use digital tools to create and present information in multiple formats.**

Computer Science & Design Thinking ***(****CS & DT****)*:

- **8.1.8.DA.1 – Collect, organize, and analyze data to identify patterns, trends, and relationships.**
- **8.1.8.DA.2 – Use multiple data representations (tables, charts, graphs) to interpret and communicate information.**
- **8.1.8.DA.3 – Evaluate data sets for accuracy, completeness, and bias.**
- **8.1.8.DA.4 – Use data analysis tools to support conclusions and solve real-world problems.**
- **8.2.8.ED.1 – Define a problem and apply a structured design process to develop solutions.**
- **8.2.8.ED.2 – Create and test models or prototypes to solve real-world problems.**
- **8.2.8.ED.3 – Evaluate solutions based on criteria, constraints, and effectiveness.**
- **8.2.8.ED.4 – Communicate design solutions using appropriate digital tools and representations.**

Interdisciplinary Connections:

- **6.1.5.GeoPP.1 – Describe how population density, resources, and culture influence where people live and work.**
- **6.1.5.GeoPP.3 – Use geographic tools and data to analyze population and environmental patterns.**
- **MS-ESS3-1 – Construct a scientific explanation based on evidence for how natural resources are distributed and used.**
- **MS-ESS3-4 – Develop a model to describe how human activities affect Earth systems.**
- **RI.6.1 / RI.7.1 / RI.8.1 – Cite textual evidence to support analysis of informational text.**

- **RI.6.7 / RI.7.7 / RI.8.7 – Integrate information presented in graphs, charts, and visuals with text.**

Learning Targets

Unit Essential Questions:

- How can we use math to understand similarities and differences among people?
- In what ways do ratios, fractions, and percentages help us compare groups?
- How can data tell a story about a community?
- How do we represent differences fairly using graphs?
- How can numbers sometimes be misleading when showing differences?
- How can we make sure mathematical comparisons are fair?

Unit Enduring Understandings:

- Math can be used to understand similarities and differences among people by collecting and comparing data in meaningful ways.
- Ratios compare one group directly to another group. Fractions show a group as part of a while. Percentages turn comparisons into "out of 100," so they are easily comparable.
- Data can turn a community's experiences, interests, and characteristics into information we can visualize and understand.
- Differences can be represented fairly in a graph when it is represented clearly and without bias.
- When information is hidden or distorted, data can be misleading.
- Mathematical comparisons are fair when they are compared in the same way and use accurate data.

Vocabulary: Data, survey, bar graph, line graph, pie chart, scale, ratio, fraction, numerator, denominator, decimal, percent, bias, misleading data, interpret

Students will be able to:

- Collect and organize data
- Create graphs to represent data
- Interpret data to describe similarities and differences
- Analyze different types of graphs
- Identify the best graph to display a data set
- Identify when a graph is misleading or bias
- Write and simplify ratios to compare groups
- Represent part of a group using fractions
- Convert among fractions, decimals, and percentages
- Compare data using fractions and percentages
- Analyze data before making conclusions

Learning Activities & Differentiation:

- Various data collection about cultural topics such as food, language, sports, etc.
    - Creation of bar graphs or pie charts
- Equivalent Ratio “I Have, Who Has?”
- Fraction of Me Self-Portrait
- Fraction games
- Percentage Posters based on data collection
- Misleading Graph Detective
- Data comparisons
- Create a story using a random sample of data

Assessment Evidence

Formative Assessments: open ended questions based on essential questions, exit/entrance tickets, polls, mini-quiz, think-pair-share, whiteboard/communicator work, relevant Community Based Instruction, self assessments

Summative Assessments: Expanded survey & graph project, data analysis/comparison, create an infographic
Common Benchmark Assessments: unit assessment, cooperative and independent learning experiences, class discussion and participation
Alternative Assessments: Multimedia presentations and projects

Core Instructional & Supplemental Materials

Math ILX, Amplify Desmos Math, Education.com, teacher created materials- Google Slides and Docs, Google Classroom, Chromebooks, Youtube/Edpuzzle

Accommodations and Modifications: Students with Disabilities, English Language Learners, Students at Risk of Failure, Students with 504s, Gifted & Talented Students

Specific Strategies and Practices that Support Students with Disabilities:

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one - Additional time - Review of directions - Student restates information - Space for movement or breaks - Extra visual and verbal cues and prompts - Preferential seating - Follow a routine/schedule - Rest breaks - Verbal and visual cues regarding directions and staying on task - Checklists - Immediate feedback

Specific Strategies and Practices that Support English Language Learners

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts - Personal Glossary - Extended Time - Simplified/Verbal Instructions - Frequent Breaks - Visual learning, including graphic organizers - Use of cognates to increase comprehension - Teacher modeling -

Pairing students with beginning English language skills with students who have more advanced English language skills - Scaffolding - Word walls - Think-pair-share - Cooperative learning groups

Students at Risk of Failure

- Home/School Connection - Alternative Assessments - Learning Contracts - Homogenous Grouping - Supplemental Instruction - Think-Pair-Share by Readiness - Homework Options - Differentiated Online Practice - Leveled Rubrics - Tiered Level of Supports - Tiered Activities - Small Group Instruction - Work Alone Choice - Group Work Choice

Students with 504 Plans

Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.
504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way. Students' accommodations are outlined in their individual 504 plan.

Specific Strategies and Practices that Support Gifted & Talented Students

It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

-Homogenous Grouping - Small Group In-Depth Instruction - Differentiated Online Practice - Alternative Assessments - Pre-Assess to provide Differentiated Instruction to Accelerate Learning

Unit 2

Desired Results

Unit 2 Title: My Community

Unit Summary: In this unit, students will explore how math helps understand and navigate the world around them, especially in their community. By connecting math to real-life situations such as reading maps, planning travel, comparing distances, and calculating area, students build problem solving skills to use in their everyday lives.

Learning Standards

NJSLS:

- **6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.**
- **6.RP.A.2 Understand the concept of a unit rate associated with a ratio and use rate language in the context of a ratio relationship.**
- **6.RP.A.3Use ratio and rate reasoning to solve real-world and mathematical problems.**
- **6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.**
- **6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values.**
- **6.NS.C.6 Understand a rational number as a point on the number line and extend number line diagrams and coordinate axes to represent negative numbers and ordered pairs.**
- **6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane**

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- **9.1.5.CR.1 Compare possible career choices based on skills, interests, and strengths.**
- **9.1.5.CR.2 Identify pathways to different types of careers and postsecondary opportunities.**
- **9.1.5.FP. Illustrate how resources are used to meet wants and needs in a community.**
- **9.1.5.FP.2 Analyze how financial decisions impact personal and community goals.**
- **9.1.5.DA.3 Organize and present data in charts, tables, and graphs to support a claim or answer a question.**
- **9.1.5.RM.1 Identify risks that individuals and families may face and possible strategies to reduce those risks.**
- **9.4.5.CI.1 Apply creative thinking to develop ideas that solve real-world problems.**
- **9.4.5.CI.2 Use digital tools to design and communicate solutions to problems.**
- **9.4.5.CT.1 Use appropriate tools and technology to solve problems effectively.**

Computer Science & Design Thinking *(CS & DT)*:

- **8.1.8.AP.4 – Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.**
- **8.1.8.DA.1 – Organize and transform data collected using computational tools to make it usable for a specific purpose.**
- **8.2.8.ED.1 – Evaluate the function, value, and aesthetics of a technological product or system from the perspective of the user and the impact on society.**
- **8.2.8.ITH.2 – Compare how technologies have influenced society over time.**
- **8.1.8.IC.1 – Identify ways that computing technology impacts personal, ethical, social, economic, and cultural practices.**

Interdisciplinary Connections:

- **NJSLSA.R1 – Read closely to determine what the text says explicitly and make logical inferences.**
- **NJSLSA.W2 – Write informative/explanatory texts to examine and communicate ideas clearly.**
- **6.1.8.GeoSV.2.a – Analyze how geography and location influence communities and daily life.**
- **6.1.8.GeoPP.1.a – Explain how physical features and transportation affect where people live and travel**
- **MS-ETS1-1 – Define criteria and constraints of a design problem to ensure successful solutions.**
- **MS-ETS1-2 – Evaluate competing solutions using evidence and reasoning.**

Learning Targets

Unit Essential Questions:

- How can math help us understand and navigate our community?
- How can we use maps to find locations and directions?
- How do scales help us connect distances on a map to real-life distances?

Unit Enduring Understandings:

- Community math helps plan trips, solve problems, plan travel efficiently, and understand the areas around us.
- The information and tools provided by maps help us find locations and directions.

• How can we use math to plan trips and make better decisions about travel? • Why is understanding conversions important when planning travel? • How can calculating area help us understand spaces in our community?	• Scales show a relationship between the map and the actual world. • Math can help analyze choices about time and cost when making travel decisions. • Being able to convert units allows us to accurately compare time, distance, and money. • Calculating area shows how much surface a space covers.
Vocabulary: map, legend (key), symbol, compass rose, scale, distance, unit, conversion, mileage, route, speed, time, estimate, area, length, width, ratio, rate	
Students will be able to: • Read a map to find locations • Utilize a map to locate directions • Measure and convert distances on a map • Calculate distance, time, and speed • Estimate travel time and mileage for a trip • Compare different routes to choose the most efficient one • Calculate and compare the area of shapes • Utilize unit rates to compare quantities (ex. miles per hour) • Plan a trip in their community	
Learning Activities & Differentiation: • Community map scavenger hunt • Create a community map • Scale and distance practice • “How Far Is It? - distance estimation game → then check accuracy	

- Route planning activity
- Compare routes
- Calculate distance, time, and fuel for a field trip
- Measure and calculate area practice
- Measure and calculate real spaces (in school and in community)
- Travel ratio practice (miles per hour, miles per gallon)

Assessment Evidence
Formative Assessments: open ended questions based on essential questions, exit/entrance tickets, polls, mini-quiz, think-pair-share, whiteboard/communicator work, relevant Community Based Instruction, self assessments
Summative Assessments: Plan a Community Trip Project, unit assessment
Common Benchmark Assessments: unit assessment, cooperative and independent learning experiences, class discussion and participation
Alternative Assessments: Multimedia presentations and projects

Core Instructional & Supplemental Materials
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Students at Risk of Failure

- Home/School Connection - Alternative Assessments - Learning Contracts - Homogenous Grouping - Supplemental Instruction - Think-Pair-Share by Readiness - Homework Options - Differentiated Online Practice - Leveled Rubrics - Tiered Level of Supports - Tiered Activities - Small Group Instruction - Work Alone Choice - Group Work Choice

Students with 504 Plans

Teachers are responsible for implementing designated services and strategies identified on a student’s 504 Plan.
504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way. Students' accommodations are outlined in their individual 504 plan.

Specific Strategies and Practices that Support Gifted & Talented Students

It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

-Homogenous Grouping - Small Group In-Depth Instruction - Differentiated Online Practice - Alternative Assessments - Pre-Assess to provide Differentiated Instruction to Accelerate Learning

Unit 3

Desired Results

Unit 3 Title: Math That Matters

Unit Summary: In this unit, students will examine how math helps them manage money and make smart financial decisions. Everyday money math skills will be stressed so students can handle money confidently and responsibly. Students will learn about rounding, counting money, shopping and comparing prices, calculating sales tax and discounts, making change, and budgeting money.

Learning Standards

NJSLS:

- **6.NS.B.3 – Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.**
- **6.RP.A.3 – Use ratio and rate reasoning to solve real-world and mathematical problems.**
- **6.EE.B.7 – Solve real-world problems by writing and solving equations.**
- **7.RP.A.3 – Use proportional relationships to solve multistep ratio and percent problems, including tax, discounts, tips, and percent increase or decrease.**
- **7.NS.A.3 – Solve real-world problems involving the four operations with rational numbers.**
- **7.EE.B.3 – Solve multi-step real-life and mathematical problems using positive and negative rational numbers.**
- **7.EE.B.4 – Use variables to represent quantities in real-world problems and construct simple equations and inequalities.**

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- **9.1.8.FP.1 – Identify strategies to manage personal finances responsibly.**
- **9.1.8.FP.2 – Compare financial choices and explain how they affect spending and saving.**
- **9.1.8.FP.3 – Evaluate the impact of budgeting, spending, and saving decisions.**
- **9.4.8.CT.2 – Develop multiple solutions to solve problems and evaluate outcomes.**
- **9.4.8.PS.1 – Apply planning and problem-solving strategies to complete tasks.**

Computer Science & Design Thinking (*CS & DT*):

- **8.1.8.DA.1 – Organize and analyze data using computational tools.**
- **8.1.8.AP.4 – Break problems into smaller steps to create solutions.**
- **8.2.8.ED.1 – Evaluate how technology supports financial decision-making and problem-solving.**

Interdisciplinary Connections:

- **8.1.8.DA.1 – Organize and analyze data using computational tools.**
- **8.1.8.AP.4 – Break problems into smaller steps to create solutions.**
- **8.2.8.ED.1 – Evaluate how technology supports financial decision-making and problem-solving.**

Learning Targets

Unit Essential Questions:

- How can math help us make smart financial decisions?
- How do rounding and estimating make handling money easier?
- Why is it important to calculate sales tax and discounts accurately?
- Why should we compare prices when shopping?

Unit Enduring Understandings:

- Financial decisions are easier to make when one is informed based on mathematical calculations.
- Rounding and estimating help us quickly understand amounts without needing exact numbers.
- Accurate calculations affect the total amount of money spent.

• Why is it important to stick to a budget? • How do making change and counting money help in real-world situations?	• Comparing prices when shopping helps the buyer get the best value for their money. • Sticking to a budget prevents overspending and increases savings. • Being able to make change and count money lets us handle money more accurately and confidently.
Vocabulary: money, dollar, cent, rounding, total, sales tax, discount, compare, change (money), budget, estimate, unit price	
Students will be able to: • Round money to the nearest dollar or cent • Count coins, bills, and total amounts accurately • Calculate total cost, including sales tax and/or discounts • Compare prices to make the best purchasing decision • Calculate correct change • Create and follow a budget • Estimate and then calculate total cost of purchases	
Learning Activities & Differentiation: • Coin and bill sorting • Money counting (up and down) (giving and receiving change) practice • Grocery comparison (unit prices) • Mock shopping • Calculating sales tax and discounts practice • Sale/Discount scavenger hunt • Budget challenges - ex. groceries, furniture, electronics, clothes • Shopping CBI	

Assessment Evidence
Formative Assessments: open ended questions based on essential questions, exit/entrance tickets, polls, mini-quiz, think-pair-share, whiteboard/communicator work, relevant Community Based Instruction, self assessments
Summative Assessments: unit assessment, monthly budget project,
Common Benchmark Assessments: unit assessment, cooperative and independent learning experiences, class discussion and participation
Alternative Assessments: Multimedia presentations and projects

Core Instructional & Supplemental Materials
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It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

-Homogenous Grouping - Small Group In-Depth Instruction - Differentiated Online Practice - Alternative Assessments - Pre-Assess to provide Differentiated Instruction to Accelerate Learning

Unit 4

Desired Results

Unit 4 Title: Jobs and Career Exploration

Unit Summary: In this unit students will explore a variety of jobs and careers while developing financial literacy and time management skills. Students will learn how math is used in everyday work including reading schedules, calculating pay and overtime, and budgeting. By connecting math to jobs and career exploration, students gain a better understanding of finances and the value of work.

Learning Standards

NJSLS:

- **6.RP.A.3 – Use ratio and rate reasoning to solve real-world and mathematical problems.**
- **6.NS.B.3 – Fluently add, subtract, multiply, and divide multi-digit decimals in real-world situations.**
- **7.RP.A.3 – Use proportional relationships to solve multistep percent problems involving pay, tips, tax, discounts, and commissions.**
- **7.EE.B.3 – Solve multi-step real-life and mathematical problems using positive and negative rational numbers.**
- **7.EE.B.4 – Use variables to represent quantities and construct equations and inequalities to solve problems.**

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- **9.1.8.CDM.1 – Identify career pathways and explore careers aligned to personal interests, skills, and goals.**
- **9.1.8.FP.1 – Explain the meaning and purposes of income and budgeting.**
- **9.1.8.FP.2 – Compare financial decisions and explain how they affect saving and spending.**
- **9.2.8.CAP.3 – Explain how career choices impact income and lifestyle.**
- **9.4.8.CT.2 – Develop multiple solutions to solve problems and evaluate outcomes.**
- **9.4.8.PS.1 – Apply planning and problem-solving strategies to complete tasks.**

Computer Science & Design Thinking *(CS & DT)*:

- **8.1.8.DA.1 – Organize and analyze data using computational tools.**
- **8.1.8.AP.4 – Break problems into smaller steps to develop solutions.**
- **8.2.8.ED.1 – Evaluate how technology supports workplace tasks and financial decision-making.**

Interdisciplinary Connections:

- **NJSLSA.R1 – Read closely to determine what the text says explicitly and make logical inferences.**
- **NJSLSA.W2 – Write informative/explanatory texts to examine and communicate ideas clearly.**
- **NJSLSA.SL1 – Participate effectively in collaborative discussions with peers and adults**
- **6.1.8.EconEM.2.a – Describe how careers, education, and skills influence earning potential and financial stability.**

Learning Targets

Unit Essential Questions:

- Why is it important to understand time when working a job?
- What is the difference between a wage and a salary?
- Why is it important to accurately calculate how much money one earns?
- What is overtime and how does it affect pay?
- What is the difference between income and expenses?
- Why is it important to create and follow a budget?

Unit Enduring Understandings:

- Understanding time is important when working a job because it affects your pay and job responsibilities.
- A wage is a payment for work based on the number of hours worked. A salary is a fixed amount of money paid over a period of time.
- If pay is not calculated correctly, you won't be able to manage your money or know you're being paid correctly.
- Overtime is extra time someone works beyond their regular work hours (usually over 40 hours). Hours

	worked at an overtime rate is often 1.5 times your normal hourly wage. • Income is money earned. Expenses are money spent on wants and needs. • It is important to create and follow a budget so you don't spend more money than you have.
Vocabulary: schedule, elapsed time, shift, job, career, wage, hourly rate, salary, income, regular pay, overtime, overtime pay, budget, income, expense, savings, wants, needs	
Students will be able to: • Tell and write time using analog and digital clocks • Calculate elapsed time • Read work schedules • Calculate total hours worked based on a given schedule • Explain the difference between wage and salary • Calculate regular pay, overtime pay, and total earnings • Explain the difference between income and expenses • Create a budget using given income and expenses • Differentiate between wants and needs when budgeting	
Learning Activities & Differentiation: • Sample job schedule analysis • Create a weekly work schedule • Elapsed time practice problems • Hourly wage calculations • Overtime calculations and analysis • Salary vs. wage sorting	

- Wants vs. needs sorting
- Expense tracker
- Build a budget
- Fix a broken budget

Assessment Evidence
Formative Assessments: open ended questions based on essential questions, exit/entrance tickets, polls, mini-quiz, think-pair-share, whiteboard/communicator work, relevant Community Based Instruction, self assessments
Summative Assessments: unit assessment, future career project, family budget project
Common Benchmark Assessments: unit assessment, cooperative and independent learning experiences, class discussion and participation
Alternative Assessments: Multimedia presentations and projects

Core Instructional & Supplemental Materials
Math ILX, Amplify Desmos Math, Education.com, teacher created materials- Google Slides and Docs, Google Classroom, Chromebooks, Youtube/Edpuzzle

Accommodations and Modifications: Students with Disabilities, English Language Learners, Students at Risk of Failure, Students with 504s, Gifted & Talented Students
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addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one - Additional time - Review of directions - Student restates information - Space for movement or breaks - Extra visual and verbal cues and prompts - Preferential seating - Follow a routine/schedule - Rest breaks - Verbal and visual cues regarding directions and staying on task - Checklists - Immediate feedback

Specific Strategies and Practices that Support English Language Learners

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts - Personal Glossary - Extended Time - Simplified/Verbal Instructions - Frequent Breaks - Visual learning, including graphic organizers - Use of cognates to increase comprehension - Teacher modeling - Pairing students with beginning English language skills with students who have more advanced English language skills - Scaffolding - Word walls - Think-pair-share - Cooperative learning groups

Students at Risk of Failure

- Home/School Connection - Alternative Assessments - Learning Contracts - Homogenous Grouping - Supplemental Instruction - Think-Pair-Share by Readiness - Homework Options - Differentiated Online Practice - Leveled Rubrics - Tiered Level of Supports - Tiered Activities - Small Group Instruction - Work Alone Choice - Group Work Choice

Students with 504 Plans

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Unit 5

Desired Results

Unit 5 Title: Technology and Daily Independent Living

Unit Summary: In this unit, students will use simple coding steps (algorithms) to solve problems, collect and organize real-life data, create and read graphs and charts, use digital tools for measurement, and understand how technology helps in math.

Learning Standards

NJSLS:

- **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.**
- **6.EE.A.2 – Write, read, and evaluate expressions in which letters stand for numbers.**
- **7.RP.A.2 – Recognize and represent proportional relationships between quantities.**
- **7.EE.B.4 – Use variables to represent quantities in real-world mathematical problems and construct equations or inequalities.**

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- **9.4.8.CT.2 – Develop multiple solutions to solve problems and evaluate outcomes.**
- **9.4.8.IML.4 – Ask insightful questions to organize different types of data and create meaningful conclusions.**
- **9.4.8.TL.3 – Use technology and digital tools to support collaboration and problem-solving.**

Computer Science & Design Thinking ***(****CS & DT****)*:

- **9.4.5.CT.2 – Explain how technology and digital tools can assist in solving everyday problems**
- **9.4.5.DC.1 – Demonstrate appropriate and safe use of digital tools and technology resources**
- **9.4.5.DC.4 – Explain how information can be organized and represented using digital tools**

- **9.4.5.IML.2 – Create and interpret data displays such as charts, tables, and graphs using technology**
- **9.4.5.TL.2 – Gather, organize, and present information using a variety of digital tools**
- **8.2.5.ITH.1 – Explain how technology impacts daily life at home, school, and in the community**
- **8.2.5.ITH.2 – Identify ways technology is used to collect, store, and communicate information**
- **8.2.5.NT.4 – Use a design process to plan and solve problems through technology and innovation**

Interdisciplinary Connections:

- **MS-ETS1-1 – Define criteria and constraints of a design problem with sufficient precision**
- **MS-ETS1-2 – Evaluate competing design solutions using a systematic process**
- **MS-ETS1-4 – Develop a model to generate data for iterative testing and modification**
- **6.1.5.A.1 – Compare how different regions address challenges using resources and technology**
- **6.1.5.B.1 – Explain how geography influences human activity and decision-making**
- **6.1.5.C.3 – Use economic decision-making to understand real-world choices**

Learning Targets

Unit Essential Questions:

- How do we solve problems step by step?
- How can we use numbers and data to understand real life?
- How do graphs help us see information?
- How do computers help us with math?
- How has technology changed how we measure and solve problems?

Unit Enduring Understandings:

- We solve problems by following clear steps.
- Data helps us understand patterns in real life.
- Graphs help us see and understand information.
- Technology can help us do math more easily and accurately.
- Math is used in everyday tools and applications.

Vocabulary:

Code, Algorithm, Step-by-step, Input, Output, Data, Graph, Chart, Pattern, Compare, Measure, Tool, Digital, Virtual,

Estimate
Students will be able to: • Follow step-by-step directions in order. • Put steps in the correct order to solve a problem. • Write simple step-by-step instructions (algorithm). • Fix mistakes in a set of steps (simple debugging). • Collect simple data (water, exercise, sleep, etc.). • Record data in a chart or table. • Read a basic graph (bar graph or picture graph). • Make a simple bar graph using provided data. • Find patterns in data (more/less, increase/decrease).
Learning Activities & Differentiation: • Daily routine sequencing and algorithm • Technology survey and data collection • Create graphs using digital tools • Read and interpret graphs on technology (screen time, favorite apps, etc.) • Measure classroom objects digitally • Sorting and organizing data • Technology scavenger hunt

Assessment Evidence
Formative Assessments: open ended questions based on essential questions, exit/entrance tickets, polls, mini-quiz, think-pair-share, whiteboard/communicator work, relevant Community Based Instruction, self assessments
Summative Assessments: unit assessment, independent living math portfolio

Common Benchmark Assessments: unit assessment, cooperative and independent learning experiences, class discussion and participation
Alternative Assessments: Multimedia presentations and projects

Core Instructional & Supplemental Materials

Math ILX, Amplify Desmos Math, Education.com, teacher created materials- Google Slides and Docs, Google Classroom, Chromebooks, Youtube/Edpuzzle

Accommodations and Modifications: Students with Disabilities, English Language Learners, Students at Risk of Failure, Students with 504s, Gifted & Talented Students

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Students at Risk of Failure

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Unit 6

Desired Results

Unit 6 Title: Health, Wellness, and the Human Body

Unit Summary: In this unit, students will collect real or simulated data to create tables, make bar graphs, line graphs, circle graphs, find averages, compare trends over time, and draw conclusions about healthy habits.

Learning Standards

NJSLS:

- **5.MD.B.2 – Make a line plot to display a data set of measurements in fractions of a unit, and use operations on fractions to solve problems involving information presented in line plots.**
- **5.MD.A.1 – Convert among different-sized standard measurement units within a given measurement system (supporting real-world data collection and interpretation).**
- **5.G.A.2 – Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting the data.**
- **5.NF.B.3 – Interpret a fraction as division of the numerator by the denominator (useful when finding averages/means).**
- **5.NF.B.6 – Solve real-world problems involving multiplication of fractions and mixed numbers (supporting data analysis and averages).**
- **5.NBT.A.2 – Explain patterns in the number of zeros when multiplying/dividing by powers of 10, supporting data scaling and graphing.**

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- **9.4.5.CI.1 – Use appropriate communication tools and digital resources to express ideas and collaborate with others**
- **9.4.5.CI.2 – Investigate new ideas and solutions to real-world problems using creativity and innovation**
- **9.4.5.CT.1 – Identify and use simple algorithms to solve problems step by step**
- **9.4.5.CT.2 – Use computational thinking to break down problems into smaller, manageable parts**
- **9.4.5.DC.1 – Demonstrate responsible use of digital tools and technology in learning activities**
- **9.4.5.DC.2 – Use online resources and tools to gather information and solve problems**

Computer Science & Design Thinking ***(****CS & DT****)***:

- **8.2.5.CT.1 – Identify and use simple algorithms to solve a problem step by step**
- **8.2.5.CT.2 – Break down a problem into smaller parts to make it easier to solve (decomposition)**

- **8.2.5.CT.3 – Recognize patterns and use them to make predictions and solve problems**
- **8.2.5.CT.4 – Develop and test solutions using a structured process and revise as needed (debugging and iteration)**
- **8.2.5.ITH.1 – Explain how technology impacts daily life at home, school, and in the community**
- **8.2.5.ITH.2 – Describe how technology is used to collect, store, and share information**

Interdisciplinary Connections:

- **MS-ETS1-3 – Analyze data from tests to determine similarities and differences among solutions**
- **MS-ETS1-4 – Develop a model to generate data for iterative testing and improvement**
- **MS-ESS3-4 – Analyze and interpret data on natural resources and human impact (data trends connection)**
- **6.1.5.A.1 – Compare how regions use resources based on data and evidence**
- **6.1.5.B.1 – Use geographic data to understand patterns and human activity**
- **6.1.5.C.3 – Use economic data to make decisions and understand real-world choices**

Learning Targets

Unit Essential Questions:

- How can data help us understand our daily health habits?
- What can graphs tell us that numbers alone cannot?
- How do we choose the best type of graph to represent data?
- What patterns can we discover in health and fitness data?
- How can we use averages to describe our wellness habits?
- What does it mean for data to show a trend?

Unit Enduring Understandings:

- Data can be used to describe and understand real-life behaviors, including health and fitness habits.
- Graphs and charts help us see patterns, trends, and relationships that are not obvious in raw numbers.
- Different types of graphs (bar, line, circle) are used for different types of data and questions.
- Measures of center (mean, median, mode) help summarize and compare data sets.
- Data analysis helps us make informed conclusions and decisions.

Vocabulary: data, data set, variable, category, frequency, bar graph, line graph, circle graph, axis, scale, title, trend, mean, median, mode, range

Students will be able to:

- Collect data on personal health habits (exercise, water intake, sleep, heart rate).
- Organize data into tables or charts.
- Create bar graphs, line graphs, and circle graphs to display health data.
- Label graphs accurately with titles, axes, and keys/legends.
- Interpret graphs to identify patterns, trends, and changes over time.
- Compare two sets of data using graphs or tables.
- Measure resting and active heart rate safely.
- Explain how exercise, sleep, and hydration affect the body.
- Track personal fitness and wellness habits over time.
- Set realistic health and fitness goals based on data.
- Describe the benefits of maintaining healthy habits consistent

Learning Activities & Differentiation:

- Daily water intake tracker
- Exercise minutes graphing
- Heart rate before and after exercising analysis
- Healthy habits survey
- Sleep line graphing
- Healthy choices analysis
- Screen time analysis
- Meal planning activity

Assessment Evidence
Formative Assessments: open ended questions based on essential questions, exit/entrance tickets, polls, mini-quiz, think-pair-share, whiteboard/communicator work, relevant Community Based Instruction, self assessments
Summative Assessments: unit assessment, compare and contrast exercising data, wellness journal
Common Benchmark Assessments: unit assessment, cooperative and independent learning experiences, class discussion and participation
Alternative Assessments: Multimedia presentations and projects

Core Instructional & Supplemental Materials
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Unit 7

Desired Results

Unit 7 Title: The Environment and Sustainability

Unit Summary: In this unit, students will use real-world environmental topics to develop and apply key math skills. They will collect, organize, and analyze data related to climate, weather, carbon footprint, recycling, and land use by creating and interpreting tables, charts, and graphs. Students will practice working with fractions, decimals, percentages, rates, and integers, while also using expressions and equations to model and solve problems. They will describe data patterns, examine variability, and make predictions using probability. By the end of the unit, students will understand how math can be used to analyze information, draw conclusions, and make informed decisions about real-world issues.

Learning Standards

NJSLS:

- **5.OA.A.1 – Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.**
- **5.OA.A.2 – Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them.**
- **5.NBT.A.3 – Read, write, and compare decimals to thousandths using place value understanding.**
- **5.NBT.A.4 – Use place value understanding to round decimals to any place.**
- **5.NBT.B.7 – Perform operations with multi-digit whole numbers and decimals to hundredths using the standard algorithm.**
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Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- **9.4.5.CI.1 – Use appropriate communication tools and digital resources to express ideas and collaborate with others on real-world problems**
- **9.4.5.CI.2 – Investigate creative and innovative solutions to real-world environmental issues**
- **9.4.5.CT.1 – Identify and use algorithms to solve problems step by step**
- **9.4.5.CT.2 – Break down complex environmental data problems into smaller, manageable parts**
- **9.4.5.DC.1 – Demonstrate responsible and safe use of digital tools and technology resources**
- **9.4.5.DC.2 – Use online tools and resources to gather and organize information**
- **9.4.5.DC.4 – Organize and represent data using digital tools such as spreadsheets, charts, and graphs**

Computer Science & Design Thinking ***(****CS & DT****)*:

- **8.2.5.CT.1 – Identify and use simple algorithms to solve a problem step by step**
- **8.2.5.CT.2 – Break down complex problems into smaller, more manageable parts (decomposition)**
- **8.2.5.CT.3 – Recognize patterns and use them to make predictions and solve problems**
- **8.2.5.CT.4 – Develop, test, and refine solutions through debugging and iteration**
- **8.2.5.DA.1 – Collect, organize, and represent data using digital tools and visual models (tables, charts, graphs)**
- **8.2.5.DA.2 – Use data to identify trends, patterns, and make predictions**
- **8.2.5.ITH.1 – Explain how technology impacts daily life, the environment, and society**

Interdisciplinary Connections:

- **MS-ESS3-3 – Apply scientific principles to design methods for monitoring and minimizing human impact on the environment**

- **MS-ESS3-4 – Construct an argument supported by evidence for how increases in human population and per-capita consumption impact Earth's systems**
- **MS-ESS2-5 – Collect data to provide evidence for how water cycles and climate systems interact**
- **MS-LS2-4 – Construct an argument supported by evidence that changes in ecosystems affect populations**
- **6.1.5.CivicsPI.3 – Examine how individuals and groups can participate in addressing community and global issues**
- **6.1.5.GeoHE.3 – Use geographic tools and data to understand human impact on the environment.**

Learning Targets

Unit Essential Questions:

- How can we use data to understand real-world environmental issues?
- What can tables, charts, and graphs tell us about patterns and trends?
- How do fractions, decimals, and percentages help us make sense of data?
- How can we use math to measure and compare things like waste, weather, and carbon footprint?
- How do rates and ratios help us understand change over time?
- How can positive and negative numbers represent real-world situations like temperature?
- How can equations help us model and solve real-life problems?

Unit Enduring Understandings:

- Data can be used to understand and explain real-world environmental issues.
- Tables, charts, and graphs reveal patterns, trends, and relationships in data.
- Fractions, decimals, and percentages help interpret and compare data in meaningful ways.
- Mathematics can be used to measure and compare quantities such as waste, weather, and carbon footprint.
- Rates and ratios help describe and analyze change over time.
- Positive and negative numbers represent real-world situations such as temperature and change.
- Equations can model real-life situations and be used to solve problems.

• What can probability tell us about predictions and outcomes? • How can we use area and measurement to understand land use and space? • How can math help us make better decisions about the environment?	• Probability helps predict outcomes and understand the likelihood of events. • Area and measurement help us understand land use and how space is utilized. • Mathematics supports informed decision-making about environmental issues.
Vocabulary: data, survey, table, bar graph, line graph, trend, analyze, interpret, fraction, decimal, percentage, rate	
Students will be able to: • Collect, organize, and display data using tables, charts, and graphs • Analyze and interpret data to answer questions and draw conclusions • Convert between fractions, decimals, and percentages • Solve real-world problems involving rates and unit rates • Use operations with positive and negative numbers in context • Write and solve expressions and equations to represent real-life situations • Calculate and interpret measures of central tendency (mean, median, mode) • Compare data sets and identify patterns or trends • Apply mathematical reasoning to topics such as climate, recycling, and land use • Explain their thinking and justify solutions using mathematical vocabulary	
Learning Activities & Differentiation: • Classroom recycling survey graph • Weather and temperature tracking • Water usage analysis • Energy saving activities • Mean, median, mode with environmental data	

- Electricity tracker
- Solar energy data activities

Assessment Evidence
Formative Assessments: open ended questions based on essential questions, exit/entrance tickets, polls, mini-quiz, think-pair-share, whiteboard/communicator work, relevant Community Based Instruction, self assessments
Summative Assessments: unit assessment, environmental problem solving scenarios, carbon footprint analysis
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Unit 8

Desired Results

Unit 8 Title: Media Literacy

Unit Summary: This unit will focus on applying mathematics to real-world situations through the analysis and interpretation of data found in everyday life and media. Students will use online data sources to investigate topics such as screen time, environmental issues, and trends presented in the media. They will develop skills in rates, percentages, expressions, and probability while learning to describe and analyze data using graphs and statistics. Throughout the unit, students will evaluate the accuracy of information, identify misleading graphs, and use mathematical evidence to support arguments. Students will strengthen their problem-solving and critical thinking skills while making meaningful connections between math and the world around them.

Learning Standards

NJSLS:

- **6.RP.A.1 – Understand the concept of a ratio and use ratio language to describe relationships between quantities**
- **6.RP.A.2 – Understand the concept of a unit rate and use rate reasoning to solve real-world problems**
- **6.RP.A.3 – Use ratio and rate reasoning to solve real-world and mathematical problems, including percent problems**
- **6.NS.C.5 – Understand that positive and negative numbers are used to describe quantities in real-world contexts**
- **6.NS.C.6 – Understand rational numbers and their placement on the number line and coordinate plane**
- **6.NS.C.7 – Understand ordering and absolute value of rational numbers in real-world contexts**
- **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 represent numbers (real-world modeling)**

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

• **9.4.5.CI.1 – Use appropriate communication tools and digital resources to express ideas and collaborate with others** • **9.4.5.CI.2 – Investigate creative and innovative solutions to real-world problems using data and evidence** • **9.4.5.CT.1 – Identify and use algorithms to solve problems step by step** • **9.4.5.CT.2 – Break down complex problems into smaller, manageable parts (computational thinking)** • **9.4.5.DC.1 – Demonstrate responsible and safe use of digital tools and technology** • **9.4.5.DC.2 – Use online tools and digital resources to gather and organize information** • **9.4.5.DC.4 – Organize and represent data using digital tools such as charts, tables, and graphs**
Computer Science & Design Thinking *(CS & DT)*: • **8.2.5.CT.1 – Identify and use simple algorithms to solve real-world problems step by step** • **8.2.5.CT.2 – Break down complex problems into smaller, manageable parts (decomposition)** • **8.2.5.CT.3 – Recognize patterns in data and use them to make predictions** • **8.2.5.CT.4 – Develop, test, and refine solutions through debugging and iteration** • **8.2.5.DA.1 – Collect, organize, and represent data using digital tools such as tables, charts, and graphs** • **8.2.5.DA.2 – Use data to identify trends, patterns, and make predictions**
Interdisciplinary Connections: • **RI.6.1 – Cite textual evidence from media sources to support analysis of information** • **RI.6.7 – Integrate information presented in different formats (graphs, charts, videos, articles)** • **W.6.1 – Write arguments supported by data and mathematical reasoning** • **W.6.2 – Write informative/explanatory texts using data to explain conclusions** • **SL.6.1 – Engage in collaborative discussions using evidence from data and media sources** • **6.1.5.CivicsPI.3 – Explain how individuals and groups use data to influence decisions in society** • **6.1.5.GeoHE.3 – Use geographic data to analyze human-environment interaction** • **6.1.5.EconET.1 – Explain how economic decisions are influenced by data, media, and resources**

Learning Targets

Unit Essential Questions:

- How can we use mathematical data to support or challenge an argument?
- How do we know if data in media or online sources is reliable and accurate?
- How can rates, percentages, and statistics help us understand real-world issues?
- What do different types of graphs and data representations tell us about trends and patterns?
- How can we identify when a graph or statistic is misleading?
- How is math used in everyday decisions like screen time, spending, and health choices?
- How can probability help us predict and understand real-life situations?
- How can expressions and equations be used to model real-world problems?

Unit Enduring Understandings:

- Mathematics is a powerful tool for understanding and interpreting real-world situations.
- Data can be collected, represented, and analyzed to reveal patterns, trends, and relationships.
- Graphs and statistics can be used to communicate information, but they can also be misleading if not interpreted carefully.
- Rates, percentages, expressions, and probability help us make sense of everyday data and support decision-making.
- Evaluating the accuracy and reliability of data is essential when forming conclusions or arguments.
- Mathematical reasoning and evidence are necessary to justify claims and critique information presented in the media.
- Problem-solving and critical thinking skills allow us to apply math meaningfully in real-life contexts.

Vocabulary: Data, Dataset, Variable, Table, Chart, Graph, Line Graph, Bar Graph, Circle Graph, Trend, Pattern, Scale, Axis (x-axis, y-axis)

Students will be able to:

- Collect, organize, and analyze data from real-world and online sources.
- Create and interpret tables, charts, and graphs to identify patterns and trends.

- Calculate and apply fractions, decimals, and percentages to analyze data.
- Use rates and ratios to describe relationships and changes over time.
- Write and solve expressions and equations to model real-life situations.
- Interpret mean, median, mode, and range to summarize data sets.
- Identify misleading graphs and evaluate the accuracy of data presented in the media.
- Use positive and negative numbers to represent and analyze real-world situations such as temperature.
- Calculate area and use measurement to solve problems related to land use and space.
- Apply probability to predict outcomes and make informed decisions.
- Use mathematical evidence to support claims and justify conclusions.
- Communicate findings clearly using appropriate mathematical vocabulary and representations.

Learning Activities & Differentiation:

- Social media survey
- Identify misleading graphs
- Fact vs. opinion data sort
- Media advertising math analysis
- Ratio and rate comparisons
- Create an infographic
- Analyze sports statistics in the media'
- Digital citizenship activity

Assessment Evidence

Formative Assessments: open ended questions based on essential questions, exit/entrance tickets, polls, mini-quiz, think-pair-share, whiteboard/communicator work, relevant Community Based Instruction, self assessments

Summative Assessments: unit assessment, media reflection journal,

Common Benchmark Assessments: unit assessment, cooperative and independent learning experiences, class discussion and participation

Alternative Assessments: Multimedia presentations and projects

Core Instructional & Supplemental Materials

Math ILX, Amplify Desmos Math, Education.com, teacher created materials- Google Slides and Docs, Google Classroom, Chromebooks, Youtube/Edpuzzle

Accommodations and Modifications: Students with Disabilities, English Language Learners, Students at Risk of Failure, Students with 504s, Gifted & Talented Students

Specific Strategies and Practices that Support Students with Disabilities:

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one - Additional time - Review of directions - Student restates information - Space for movement or breaks - Extra visual and verbal cues and prompts - Preferential seating - Follow a routine/schedule - Rest breaks - Verbal and visual cues regarding directions and staying on task - Checklists - Immediate feedback

Specific Strategies and Practices that Support English Language Learners

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts - Personal Glossary - Extended Time - Simplified/Verbal Instructions - Frequent Breaks - Visual learning, including graphic organizers - Use of cognates to increase comprehension - Teacher modeling - Pairing students with beginning English language skills with students who have more advanced English language skills - Scaffolding - Word walls - Think-pair-share - Cooperative learning groups

Students at Risk of Failure

- Home/School Connection - Alternative Assessments - Learning Contracts - Homogenous Grouping - Supplemental Instruction - Think-Pair-Share by Readiness - Homework Options - Differentiated Online Practice - Leveled Rubrics - Tiered Level of Supports - Tiered Activities - Small Group Instruction - Work Alone Choice - Group Work Choice

Students with 504 Plans

Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.
504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way. Students' accommodations are outlined in their individual 504 plan.

Specific Strategies and Practices that Support Gifted & Talented Students

It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

-Homogenous Grouping - Small Group In-Depth Instruction - Differentiated Online Practice - Alternative Assessments - Pre-Assess to provide Differentiated Instruction to Accelerate Learning

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2. Reason abstractly and quantitatively

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3. Construct viable arguments and critique the reasoning of others

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4. Model with mathematics

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such

tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5. Use appropriate tools strategically

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6. Attend to precision

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

7. Look for and make use of structure

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered$7 \times 5 + 7 \times 3$, in

preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$ older students can see the 14 as $2 \times 7$and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

8. Look for and express regularity in repeated reasoning

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $\frac{(y-2)}{(x-1)} = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)\left(x^2 + x + 1\right)$ and $(x - 1)\left(x^3 + x^2 + x + 1\right)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.