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### ABOUT THIS DOCUMENT

This document is meant to provide WCUUSD teachers with a curriculum map for teaching mathematics at this grade level. It combines four elements: (1.) our WCUUSD Performance Indicators and Proficiency Scales for Math; (2.) our [WCUUSD Effective Practices for Mathematics Instruction](#); (3.) the Illustrative Mathematics materials for instruction and assessment; and (4.) the notes and supplemental resources developed and/or curated by our WCUUSD math teachers. Teachers can use this document to decide next instructional steps for their students based on daily ongoing formative assessment.

The Illustrative Mathematics Program is used as a common program for high school in WCUUSD to ensure consistency and vertical alignment. Teachers are expected to:

- Reference the lessons and sessions in planning (addressing the skills, language, models, routines, and prompts suggested).
- Use their professional judgment to supplement and adapt the program.
- Use unit assessments from the program as district benchmarks.
- Address the essential concepts using consistent language, routines (for example, turn and talk, notice and wonder, or which one doesn't belong), and tasks.

Each Illustrative Math lesson is intended to take between 50-60 minutes and includes a "Launch" activity that is intended to activate prior knowledge before moving into a problem. The focus for lesson is to foster student thinking and discourse using discussion routines. Additional instructional time can be used to focus on personalized instructional opportunities that provide a teacher with the opportunities to follow up with individuals and small groups. This can be accomplished using strategies like math menus, games, project time. Additionally, by the end of the year each student at this grade level should be spending 30-40 minutes each week working on personalized learning on "My Path" in i-Ready or Get More Math (which may be included as part of a math menu).

Illustrative Mathematics lessons are supplemented with dynamic activities and technology platforms such as: Desmos, Geogebra, Google Sheets.

The following templates can be used to organize the elements into instructional plans:

- [WCUUSD Lesson Planning for the Week Template](#) - This is a template to help teachers plan an outline for math instruction by the week (with or without a math menu).
- [WCUUSD Math Menu Lesson Planning Template](#) - This is a template that can be used to plan instruction by the day (with or without math menu).

Finally, this document is a work in progress. We will be adding to it and improving it through our collaborative work.

AUGUST - SEPTEMBER			
Illustrative Math Unit 1 - One-Variable Statistics			
Math Lesson	WCUUSD Performance Indicators	Assessments	Lesson Notes & Supplemental Materials
Distribution Shapes	<a href="#">MCP4 :Summarize, represent, and interpret data on two categorical and quantitative variables, and interpret models.</a>	<a href="#">Formative Assessment: One-Variable Statistics</a>	<ul style="list-style-type: none"><li>• Statistical v. Non-statistical questions</li><li>• Bell shaped, bimodal, skewed, symmetric, uniform</li><li>• Measures of Center: median, mean</li><li>• Measures of Spread: IQR, mean absolute deviation, standard deviation (extension)</li><li>• Displaying Data: dotplots, box plots, histograms,</li></ul>
How to Use Spreadsheets			<ul style="list-style-type: none"><li>• Platforms: Geogebra and Google Sheets</li><li>• Basic commands/controls to calculate statistics and display data</li><li>• Recursive pattern creation with cells</li></ul>
Manipulating Data			<ul style="list-style-type: none"><li>• The effect of extremes</li><li>• Outliers</li></ul>
Analyzing Data			<ul style="list-style-type: none"><li>• Choosing appropriate statistics given shape of data</li></ul>
<a href="#">Unit 1 Assessment (September)</a>			



OCTOBER - NOVEMBER			
Illustrative Math Unit 2 - Linear Functions & Equations			
Illustrative Math Lesson	WCUUSD Performance Indicators	Assessment	Lesson Notes & Supplemental Materials
<a href="#">Writing and Modeling with Equations</a>	<a href="#">(MCP2a,MCP2b, MCP2c, MCP3a,MCP3b) Model and interpret linear relationships between two variables</a>	<a href="#">Formative Assessment #1: Solving Equations, Analyzing Linear Graphs, Writing Equations</a>	<ul style="list-style-type: none"> <li>Identifying quantities that change (variable) and remain constant</li> </ul>
<a href="#">Manipulating Equations and Understanding Their Structure</a>		<a href="#">Formative Assessment #2: Solving Equations, Manipulating Equations, Graphing Equations, Systems (extend)</a>	<ul style="list-style-type: none"> <li>Properties of equality</li> <li>Like terms</li> <li>Equivalent equations</li> <li>Desmos to enhance engagement and provide immediate feedback</li> <li>Supplemental continued practice necessary to master skill of solving, manipulating equations</li> </ul>
<a href="#">Systems of Linear Equations in Two Variables</a>		<a href="#">Formative Assessment #3: Solving Equations, Analyzing Graphs, Solving Systems of Equations</a>	<ul style="list-style-type: none"> <li>Extend: three-variables</li> <li>Desmos to enhance engagement and provide immediate feedback</li> <li>3-Act Lesson on Electric Car Batteries</li> <li>Supplemental continued practice necessary to master skill of solving systems of equations using a variety of methods (substitution, elimination, graphing)</li> </ul>

[Unit 2 Assessment \(Late-November\)](#)

DECEMBER- JANUARY			
Illustrative Math Unit 3 - Linear Programming			
Illustrative Math Lesson	WCUUSD Performance Indicators	Assessments	Lesson Notes & Supplemental Materials
<a href="#">Linear Inequalities in One Variable</a> & Writing Constraints	<a href="#">(MCP2a.MCP2b. MCP2c. MCP3a.MCP3b) Model and interpret linear relationships between two variables</a>	<a href="#">Formative Assessment #4: Writing constraints, solving one-variable inequalities,</a>	<ul style="list-style-type: none"> <li>• Desmos to enhance engagement and conceptual understanding around full solution set of an inequality as a range of values</li> <li>• Need to provide opportunity for students to justify why sign changes when you multiply/divide by a negative value when solving an inequality.</li> </ul>
<a href="#">Linear Inequalities in Two Variables</a>		<a href="#">Formative Assessment #5: Writing, Solving Inequalities, Graphing Two-Variable Inequalities</a>	<ul style="list-style-type: none"> <li>• Desmos to enhance engagement and conceptual understanding around full solution set of a two variable inequality as a half-plane region of (x,y) ordered pairs</li> <li>• Desmos as graphing technology</li> <li>• Compound inequalities as an extension (absolute value inequality too)</li> </ul>

<a href="#">Systems of Linear Inequalities in Two Variables</a> & Linear Programming			<ul style="list-style-type: none"> <li>• Need to scaffold, build up procedural knowledge around linear programming (identify variables, create constraints, write inequalities, graph, identify feasible region, establish objective function, test intersection points)</li> <li>• Desmos as graphing technology</li> </ul>
<a href="#">You-32 Linear Programming Project</a>	<a href="#">(MCP2a.MCP2b. MCP2c. MCP3a.MCP3b) Model and interpret linear relationships between two variables</a>	<a href="#">Benchmark #1 Proposal</a> <a href="#">Benchmark #2 Mathematical Analysis (Linear Programming)</a> <a href="#">Benchmark #3 Final Report</a>	<ul style="list-style-type: none"> <li>• Collaboration with U-32 Food Service, including interview with Food Service Director</li> <li>• Students work in small groups to propose two new menu items and apply linear programming to assess feasibility under WCUUSD food service constraints.</li> </ul>
<a href="#">Unit 3 Assessment (Mid-January, Before End of S1)</a>			



JANUARY - FEBRUARY			
Illustrative Math Unit 4 - Functions & Two Variable Statistics			
Illustrative Math Lesson	WCUUSD Performance Indicators	Assessment	Lesson Notes & Supplemental Materials
Functions: Inputs & Outputs	<a href="#">MCP3 Analyze, build &amp; compare functions</a>  <a href="#">MCP 5 Summarize, represent, and interpret data on two categorical and quantitative variables, and interpret models.</a>	<a href="#">Formative Assessment #1: Functions &amp; Scatterplots</a>	<ul style="list-style-type: none"><li>Domain/Range</li><li>Composing Functions</li><li>Evaluating Functions</li></ul>
Scatterplots			<ul style="list-style-type: none"><li>Desmos</li><li>Spurious Correlations</li><li>Guess My Correlation Game</li></ul>
Inverse Functions		<a href="#">Formative Assessment #2: Inverse Functions, Correlation, Residuals, Outliers, Composition of Functions</a>	<ul style="list-style-type: none"><li>Inverses as a machine that reverses inputs and outputs</li></ul>
Correlation Coefficients/Regressions			<ul style="list-style-type: none"><li>Residuals (Steph Curry Desmos Activity)</li></ul>
Outliers and Leverage Points			
Composing and Transforming Functions			<ul style="list-style-type: none"><li>Absolute Value</li><li>Piecewise Functions</li></ul>
<a href="#">Part One Unit 4 Assessment (Late February): Regression Task</a> <a href="#">Part Two Unit 4 Assessment (Late February)</a>			

MARCH - Mid-APRIL			
Illustrative Math Unit 5 - Introduction to Exponential Functions			
Illustrative Math Lesson	WCUUSD Performance Indicators	Assessment	Lesson Notes & Supplemental Materials
Growth	<a href="#">(MCP3) Explore relationships between quantities with a constant quotient over equal intervals</a>	<a href="#">Formative #1: Exponent Rules &amp; Models</a>	<ul style="list-style-type: none"> <li>Skill: Exponent Rules (make sure you derive these)</li> </ul>
A New Kind of Growth: Additive v. Multiplicative Change			<ul style="list-style-type: none"> <li>General form <math>a \cdot b^x</math>, <math>a \cdot (1 \pm r)^x</math></li> <li>3-Act/Desmos to enhance engagement and explore additive/multiplicative growth</li> <li>Potential tool: Google sheets for recursive patterns</li> </ul>
Exponential Functions		<a href="#">Formative #2: Exponential Rules, Models, &amp; Equations</a>	<ul style="list-style-type: none"> <li>Skill: Solving Exponential Equations</li> </ul>
Percent Growth & Decay			<ul style="list-style-type: none"> <li>Practice skill of converting decimal to percents</li> <li>Percent Change</li> <li>Compound Interest</li> <li>Extend: Rational Exponents</li> <li>Extend: Writing Exponential Functions given any two (x,y) points</li> <li>Extend: transform exponential functions</li> </ul>

[Unit 5 Assessment \(April\)](#)

May - June			
Illustrative Math Unit 6 - Introduction to Quadratic Functions			
Illustrative Math Lesson	WCUUSD Performance Indicators	Assessment	Lesson Notes & Supplemental Materials
Quadratic Functions	<a href="#">(MCP3) Explore relationships between quantities that behave quadratically.</a>	<a href="#">IM Mid-Unit Assessment</a>	<ul style="list-style-type: none"><li>• Comparing quadratics &amp; exponential</li><li>• Building quadratics from situations</li></ul>
Working with Quadratic Expressions			<ul style="list-style-type: none"><li>• Skill: GCF</li><li>• Factor quadratic expressions with leading coefficient 1 (extend: NOT 1)</li><li>• Using area model to support factoring</li><li>• Completing the square</li></ul>
Graphs of Quadratic Functions			<ul style="list-style-type: none"><li>• Anatomy of a parabola: vertex, axis of symmetry, intercepts, etc.</li><li>• Vertex form, standard form, factored form - converting between forms</li><li>• Extend: transforming quadratic functions</li></ul>
<a href="#">Unit 6 Assessment (Mid-June)</a>			