

El Monte Union High School District

Course Outline

12/19/16

High School District-Wide

Title: Math Lab

Transitional* _____ (Eng. Dept. Only)

Sheltered (SDAIE)* _____ Bilingual* _____

AP** _____ Honors** _____

Department: Mathematics

Grade Level (s): 9/10

Semester _____ Year X

Year of State Framework Adoption _____

This course meets graduation requirements:

- ☐ English
- ☐ Fine Arts
- ☐ Foreign Language
- ☐ Health & Safety
- ☐ Math
- ☐ Physical Education
- ☐ Science
- ☐ Social Science
- ☒ Elective

Department/Cluster Approval

Date

_____	_____
_____	_____
_____	_____
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_____	_____
_____	_____

*Instructional materials appropriate for English language learners are required.

**For AP/Honors course attach a page describing how this course is above and beyond a regular course. Also, explain why this course is the equivalent of a college level class.

1. Prerequisite(s):

- 9th or 10th grade student
AND
- Concurrent enrollment in Integrated Math 1
AND
- D- (60%) or Below in 8th Grade Common Core Math or Integrated Math 1
AND
- Math Inventory (MI) Quantile Score of 800 or below for students tested in the 8th grade and 865 or below for students tested in the 9th grade
OR
Math SBAC scale score of 2483 or below for 7th grade results or 2503 or below for 8th grade results.

2. Short description of course, which may also be used in the registration manual:

This course is designed to assist students who need additional support to achieve at least a “C” in Integrated Math 1. Along with supporting the Integrated Math 1 curriculum, this course will incorporate a blended learning environment, which allows for students to have access to technology, teacher led instruction, as well as collaborative group instruction. The Math Lab course will utilize an adaptive computer-based program to help target the needs of individual students. Students will review and reinforce the Common Core Standards addressed in Integrated Math 1 as well as the 8 Standards for Mathematical Practice. The Math Lab course will also emphasize note-taking, clarifying concepts, review of basic math skills, and exploration. Students will only receive elective credits for this course.

3. Describe how this course integrates the school’s SLOs (School-wide Learning Outcomes): (Site SLOs may replace those listed below)

All schools have SLOs that refer to students as **academic achievers**, **critical thinkers**, and **effective communicators**. The following shows how this course addresses these components:

- Academic Achievers – Students will further develop and refine their skills in reading, writing, and math.
- Critical Thinkers – Students will be using their critical thinking skills to solve various types of math problems including real-world related problems.
- Effective Communicators – Students will be working in collaborative groups to share their thought processes in order to promote teamwork and peer tutoring.
- Technology – Students will be utilizing an online computer based math program that is adaptive to their needs.

4. Describe the additional efforts/teaching techniques/methodology to be used to meet the needs of English language learners:

- Oral and academic language development will be utilized.
- Study skills and Cornell notes will be emphasized.
- Research based strategies and activities such as SIOP, AVID, metacognitive strategies, Marzano strategies, Kinsella strategies will assist student learning.
- Prior knowledge will be used to build connections and support new learning.
- Vocabulary and content development will be highlighted.
- Graphic organizers, visuals, relia, audio, and technology software will be utilized during instruction in order to support multiple learning modalities and Universal Design for Learning.
- Engagement routines such as think-write-pair-share, text mark-up, and group/pair work.
- Writing support scaffolds such as sentence-framing and paragraph-framing will be utilized.
- Reasoning and justifying answers will be highly encouraged.
- Flexible instructional organization for whole-class, group, paired and individualized learning will be implemented.

5. Describe the interdepartmental articulation process for this course:

There is more intradepartmental articulation than interdepartmental, as this course is designed to support the existing Integrated Math 1 course. The mathematics concepts reinforced in this class help support all other disciplines in developing the following: understanding of logical reasoning; interpretation of graphs; analysis of the reasonability of results; and basic skills in applying percents, ratios, and fractions.

6. Describe how this course will integrate academic and vocational concepts, possibly through connecting activities. Describe how this course will address work-based learning/school to career concepts:

This course will provide students with a plethora of real-world and career-related applications problems to solve. Students will be given opportunities to apply their reasoning, communicating, problem solving, data analysis, and modeling skills throughout the course with various activities and performance tasks.

7. Materials of Instruction (Note that materials of instruction for English language learners are required and should be listed below.)

- a. Textbook(s) and Core Reading(s): *Integrated Mathematics 1*. Kanold, T.D., Burger, E.B., Dixon, J.K., Larson, M.R., Leinwand, S.J. Houghton Mifflin Harcourt Publishing Company 2015.
- b. Supplemental Materials and Resources:
 - *HMH Integrated Math 1 California Student Workbooks*
 - *HMH Integrated Math 1 California Response to Intervention Teacher Resources*
 - *HMH Integrated Math 1 California Online Teacher Resource Management Center*
 - <https://my.hrw.com> (Personal Math Trainer)
 - *Khan Academy*
 - <https://www.khanacademy.org>

8.

a. Objectives of Course

The primary objective of the Math Lab course is to strengthen the knowledge and foundation presented by the Integrated Math 1 course along with the following:

- Clarify additional questions that arise after homework has been attempted
- Provide additional practice and feedback to ensure in-depth learning
- Utilize an adaptive online program to allow for remediation of basic skills and skills needed to support understanding of current math topics based on each individual student's need
- Provide students with an opportunity to explore mathematics in a non-traditional manner

b. Unit detail including projects and activities including duration of units (pacing plan):

A third of each class period will be devoted to clarifying questions about the primary instruction. Teachers will present/reteach concepts from the Integrated Math 1 primary instruction utilizing the Integrated Mathematics 1 Response to Intervention Resources in order to clarify and strengthen student understanding. Another third of the class will be spent reviewing basic skills that are weak (utilizing an adaptive math program such as Khan Academy or Personal Math Trainer from HMH) and/or additional practice for current material. The final third of the class will be spent exploring math through performance tasks, activities, manipulatives and or games.

Additionally, the amount of support and intervention required by students will be based on each student's individual needs and will be provided with either a Tier 1, Tier 2, or Tier 3 Intervention support (See attached **Response to Intervention matrix**).

c. Indicate references to state framework(s)/standards (If state standard is not applicable, then national standard should be used.)

The Math Lab course will be in line with the Integrated Math 1 course and will generally follow the pacing structure and Common Core Standards set forth by Integrated Math 1. **(See attachment for Integrated Math 1 CCSS standards)**

d. Student performance standard

Students will be assessed in the Math Lab course based on the scale of

90% - 100% A

80% – 89% B

70% - 79% C

60% - 69% D

59% and lower is failing

e. Evaluation/assessment/rubrics

Students will be assessed in the lab class with quizzes, tests, and class participation as well as homework completion and notebooks. Students will be taking the district math benchmarks in their primary Integrated Math 1 classes.

Additionally, teachers utilizing an adaptive math program will grade students in accordance to hours spent on using the program as well as number of skills mastered. **(See attachment for sample grading rubric)**

f. Include minimal attainment for student to pass course

Students will receive elective credit for passing the Math Lab class with a grade of “D” or better (60% or above).

UNIT 1 QUANTITIES AND MODELING					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 1 Quantitative Reasoning					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills.
1.1 Solving Equations 1.2 Modeling Quantities 1.3 Reporting with Precision and Accuracy	Reteach 1-1 Reteach 1-2 Reteach 1-3	Module 1	13 One-Step Equations 17 Scale Factor and Scale Drawings 19 Significant Digits 24 Writing Linear Equations	Skill 13 Skill 17 Skill 19 Skill 24	
Module 2 Algebraic Models					See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
2.1 Modeling with Expressions 2.2 Creating and Solving Equations 2.3 Solving for a Variable 2.4 Creating and Solving Inequalities 2.5 Creating and Solving Compound Inequalities	Reteach 2-1 Reteach 2-2 Reteach 2-3 Reteach 2-4 Reteach 2-5	Module 2	2 Algebraic Expressions 13 One-Step Equations 14 One-Step Inequalities 21 Two-Step Equations 22 Two-Step Inequalities	Skill 2 Skill 13 Skill 14 Skill 21 Skill 22	

UNIT 2 UNDERSTANDING FUNCTIONS					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 3 Functions and Models					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills. See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
3.1 Graphing Relationships 3.2 Understanding Relations and Functions 3.3 Modeling with Functions 3.4 Graphing Functions	Reteach 3-1 Reteach 3-2 Reteach 3-3 Reteach 3-4	Module 3	6 Graphing Linear Nonproportional Relationships 7 Graphing Linear Proportional Relationships 10 Linear Functions	Skill 6 Skill 7 Skill 10	
Module 4 Patterns and Sequences					
4.1 Identifying and Graphing Sequences 4.2 Constructing Arithmetic Sequences 4.3 Modeling with Arithmetic Sequences	Reteach 4-1 Reteach 4-2 Reteach 4-3	Module 4	1 Add and Subtract Integers 2 Algebraic Expressions 12 Multiply and Divide Integers	Skill 1 Skill 2 Skill 12	



ADDITIONAL ONLINE INTERVENTION RESOURCES



Tier 1, Tier 2, Tier 3 Skills

Personal Math Trainer will automatically create a standards-based, personalized intervention assignment for your students, targeting each student's individual needs!



Tier 2 Skills

Students scan QR codes with their smart phones to watch Math on the Spot tutorial videos for every Tier 2 skill.

UNIT 3 LINEAR FUNCTIONS, EQUATIONS, AND INEQUALITIES					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 5 Linear Functions					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills. See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
5.1 Understanding Linear Functions	Reteach 5-1	Module 5	4 Constant Rate of Change	Skill 4	
5.2 Using Intercepts	Reteach 5-2		7 Graphing Linear Proportional Relationships	Skill 7	
5.3 Interpreting Rate of Change and Slope	Reteach 5-3		8 Interpreting the Unit Rate as Slope	Skill 8	
			11 Multi-Step Equations	Skill 11	
			20 Slope	Skill 20	
			23 Unit Rates	Skill 23	
Module 6 Forms of Linear Equations					
6.1 Slope-Intercept Form	Reteach 6-1	Module 6	4 Constant Rate of Change	Skill 4	
6.2 Point-Slope Form	Reteach 6-2		7 Graphing Linear Proportional Relationships	Skill 7	
6.3 Standard Form	Reteach 6-3		10 Linear Functions	Skill 10	
6.4 Transforming Linear Functions	Reteach 6-4		20 Slope	Skill 20	
6.5 Comparing Properties of Linear Functions	Reteach 6-5		21 Two-Step Equations	Skill 21	
			23 Unit Rates	Skill 23	
Module 7 Linear Equations and Inequalities					
7.1 Modeling Linear Relationships	Reteach 7-1	Module 7	2 Algebraic Expressions	Skill 2	
7.2 Using Functions to Solve One-Variable Linear Equations	Reteach 7-2		7 Graphing Linear Proportional Relationships	Skill 7	
7.3 Linear Inequalities in Two Variables	Reteach 7-3		10 Linear Functions	Skill 10	
			24 Writing Linear Equations	Skill 24	

UNIT 4 STATISTICAL MODELS					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 8 Multi-Variable Categorical Data					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills. See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
8.1 Two-Way Frequency Tables	Reteach 8-1	Module 8	15 Percents	Skill 15	
8.2 Relative Frequency	Reteach 8-2		25 Two-Way Frequency Tables	Skill 25	
			26 Two-Way Relative Frequency Tables	Skill 26	
Module 9 One-Variable Data Distributions					
9.1 Measures of Center and Spread	Reteach 9-1	Module 9	28 Measures of Center	Skill 28	
9.2 Data Distributions and Outliers	Reteach 9-2		29 Box Plots	Skill 29	
9.3 Histograms and Box Plots	Reteach 9-3		30 Histograms	Skill 30	
9.4 Normal Distributions	Reteach 9-4				
Module 10 Linear Modeling and Regression					
10.1 Scatter Plots and Trend Lines	Reteach 10-1	Module 10	9 Linear Associations	Skill 9	
10.2 Fitting a Linear Model to Data	Reteach 10-2		10 Linear Functions	Skill 10	
			18 Scatter Plots	Skill 18	
			24 Writing Linear Equations	Skill 24	

UNIT 5 LINEAR SYSTEMS AND PIECE-WISE DEFINED FUNCTIONS					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 11 Solving Systems of Linear Equations					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills. See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
11.1 Solving Linear Systems by Graphing	Reteach 11-1	Module 11	2 Algebraic Expressions	Skill 2	
11.2 Solving Linear Systems by Substitution	Reteach 11-2		6 Graphing Linear Nonproportional Relationships	Skill 6	
11.3 Solving Linear Systems by Adding or Subtracting	Reteach 11-3		7 Graphing Linear Proportional Relationships	Skill 7	
11.4 Solving Linear Systems by Multiplying First	Reteach 11-4		10 Linear Functions	Skill 10	
Module 12 Modeling with Linear Systems					
12.1 Creating Systems of Linear Equations	Reteach 12-1	Module 12	2 Algebraic Expressions	Skill 2	
12.2 Graphing Systems of Linear Inequalities	Reteach 12-2		10 Linear Functions	Skill 10	
12.3 Modeling with Linear Systems	Reteach 12-3		14 One-Step Inequalities	Skill 14	
			21 Two-Step Equations	Skill 21	
			22 Two Step Inequalities	Skill 22	
Module 13 Piecewise-Defined Functions					
13.1 Understanding Piecewise-Defined Functions	Reteach 13-1	Module 13	10 Linear Functions	Skill 10	
13.2 Absolute Value Functions and Transformations	Reteach 13-2		11 Multi-Step Equations	Skill 11	
13.3 Solving Absolute Value Equations	Reteach 13-3		22 Two-Step Inequalities	Skill 22	
13.4 Solving Absolute Value Inequalities	Reteach 13-4		27 Absolute Value	Skill 27	

ADDITIONAL ONLINE INTERVENTION RESOURCES



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Tier 2 Skills
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UNIT 6 EXPONENTIAL RELATIONSHIPS					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 14 Geometric Sequences and Exponential Functions					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills. See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
14.1 Understanding Geometric Sequences	Reteach 14-1	Module 14	2 Algebraic Expressions	Skill 2	
14.2 Constructing Geometric Sequences	Reteach 14-2		5 Exponents	Skill 5	
14.3 Constructing Exponential Functions	Reteach 14-3		11 Multi-Step Equations	Skill 11	
14.4 Graphing Exponential Functions	Reteach 14-4				
14.5 Transforming Exponential Functions	Reteach 14-5				
Module 15 Exponential Equations and Models					
15.1 Using Graphs and Properties to Solve Equations with Exponents	Reteach 15-1	Module 15	4 Constant Rate of Change	Skill 4	
15.2 Modeling Exponential Growth and Decay	Reteach 15-2		5 Exponents	Skill 5	
15.3 Using Exponential Regression Models	Reteach 15-3		15 Percent	Skill 15	
15.4 Comparing Linear and Exponential Models	Reteach 15-4		18 Scatter Plots	Skill 18	

UNIT 7 TRANSFORMATIONS AND CONGRUENCE					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 16 Tools of Geometry					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills. See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
16.1 Segment Length and Midpoints	Reteach 16-1	Module 16	33 More Algebraic Representations of Transformations	Skill 33	
16.2 Angle Measure and Angle Bisectors	Reteach 16-2		34 Angle Relationships	Skill 34	
16.3 Representing and Describing Transformations	Reteach 16-3		38 Distance and Midpoint Formulas	Skill 38	
16.4 Reasoning and Proof	Reteach 16-4				
Module 17 Transformations and Symmetry					
17.1 Translations	Reteach 17-1	Module 17	42 Properties of Reflections	Skill 42	
17.2 Reflections	Reteach 17-2		43 Properties of Rotations	Skill 43	
17.3 Rotations	Reteach 17-3		44 Properties of Translations	Skill 44	
17.4 Investigating Symmetry	Reteach 17-4				
Module 18 Congruent Figures					
18.1 Sequences of Transformations	Reteach 18-1	Module 18	37 Congruent Figures	Skill 37	
18.2 Proving Figures are Congruent Using Rigid Motions	Reteach 18-2		42 Properties of Reflections	Skill 42	
			43 Properties of Rotations	Skill 43	
18.3 Corresponding Parts of Congruent Figures Are Congruent	Reteach 18-3		44 Properties of Translations	Skill 44	

UNIT 8 LINES, ANGLES, AND TRIANGLES					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 19 Lines and Angles					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills. See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
19.1 Angles Formed by Intersecting Lines	Reteach 19-1	Module 19	34 Angle Relationships	Skill 34	
19.2 Transversals and Parallel Lines	Reteach 19-2		40 Parallel Lines Cut by a Transversal	Skill 40	
19.3 Proving Lines Are Parallel	Reteach 19-3		42 Properties of Reflections	Skill 42	
19.4 Perpendicular Lines	Reteach 19-4		47 Writing Equations of Parallel, Perpendicular, Vertical, and Horizontal Lines	Skill 47	
19.5 Equations of Parallel and Perpendicular Lines	Reteach 19-5				
Module 20 Triangle Congruence Criteria					
20.1 Exploring What Makes Triangles Congruent	Reteach 20-1	Module 20	37 Congruent Figures	Skill 37	
20.2 ASA Triangle Congruence	Reteach 20-2		40 Parallel Lines Cut by a Transversal	Skill 40	
20.3 SAS Triangle Congruence	Reteach 20-3		42 Properties of Reflection	Skill 42	
20.4 SSS Triangle Congruence	Reteach 20-4		43 Properties of Rotations	Skill 43	
			44 Properties of Translations	Skill 44	
Module 21 Applications of Triangle Congruence					
21.1 Justifying Constructions	Reteach 21-1	Module 21	35 Angle Theorems for Triangles	Skill 35	
21.2 AAS Triangle Congruence	Reteach 21-2		37 Congruent Figures	Skill 37	
21.3 HL Triangle Congruence	Reteach 21-3		40 Parallel Lines Cut by a Transversal	Skill 40	
Module 22 Properties of Triangles					
22.1 Interior and Exterior Angles	Reteach 22-1	Module 22	34 Angle Relationships	Skill 34	
22.2 Isosceles and Equilateral Triangles	Reteach 22-2		35 Angle Theorems for Triangles	Skill 35	
22.3 Triangle Inequalities	Reteach 22-3		38 Distance and Midpoint Formulas	Skill 38	
Module 23 Special Segments in Triangles					
23.1 Perpendicular Bisectors of Triangles	Reteach 23-1	Module 23	35 Angle Theorems for Triangles	Skill 35	
23.2 Angle Bisectors of Triangles	Reteach 23-2		38 Distance and Midpoint Formulas	Skill 38	
23.3 Medians and Altitudes of Triangles	Reteach 23-3		39 Geometric Drawings	Skill 39	
23.4 Midsegments of Triangles	Reteach 23-4				



ADDITIONAL ONLINE INTERVENTION RESOURCES



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Tier 2 Skills

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UNIT 9 QUADRILATERALS AND COORDINATE PROOF					
Student Edition Lessons	Tier 1 Skills	Pre-Tests	Tier 2 Skills Strategic Intervention	Post-Tests	Tier 3 Skills Intensive Intervention
Module 24 Properties of Quadrilaterals					 Building Block (Tier 3) worksheets are available online for students who need additional support on prerequisite skills. See the teacher page of each Tier 2 Skill lesson for a list of Building Block skills.
24.1 Properties of Parallelograms	Reteach 24-1	Module 24	37 Congruent Figures 41 Parallelograms	Skill 37 Skill 41	
24.2 Conditions for Parallelograms	Reteach 24-2				
24.3 Properties of Rectangles, Rhombuses, and Squares	Reteach 24-3				
24.4 Conditions for Rectangles, Rhombuses, and Squares	Reteach 24-4				
24.5 Properties and Conditions for Kites and Trapezoids	Reteach 24-5				
Module 25 Coordinate Proof Using Slope and Distance					
25.1 Slope and Parallel Lines	Reteach 25-1	Module 25	36 Area of Composite Figures	Skill 36	
25.2 Slope and Perpendicular Lines	Reteach 25-2		38 Distance and Midpoint Formulas	Skill 38	
25.3 Coordinate Proof Using Distance with Segments and Triangles	Reteach 25-3		45 Rate of Change and Slope 46 Using Slope and y-intercept	Skill 45 Skill 46	
25.4 Coordinate Proof Using Distance with Quadrilaterals	Reteach 25-4		47 Writing Equations of Parallel, Perpendicular, Vertical, and Horizontal Lines	Skill 47	
25.5 Perimeter and Area on the Coordinate Plane	Reteach 25-5				

Using HMH Integrated Math 1 Response to Intervention

 RtI Response to Intervention	Print Resources	Online Resources
TIER 1	TIER 2 STRATEGIC INTERVENTION	TIER 1, TIER 2, AND TIER 3
Reteach worksheet (one worksheet per lesson) • Use to provide additional support for students who are having difficulty mastering the concepts taught in Integrated Math 1. Progress Monitoring • Use <i>Student Edition Ready to Go On? Quizzes</i> to assess mastery of skills taught in the Modules. Use for all students. • Use <i>Assessment Resources Module Quizzes</i> to assess mastery of skills taught in the Modules. For students who are considerably below level, use Modified Quizzes. For all other students, use Level B.	Skill Intervention worksheets (one set per skill) • Use for students who require intervention with prerequisite skills taught in Middle School. Skill Intervention Teacher Guides (one guide per skill) • Use to provide systematic and explicit instruction, and alternate strategies to help students acquire mastery with prerequisite skills. Progress Monitoring • Use <i>Response to Intervention Module Pre-Tests</i> or the <i>Student Edition Are You Ready? Quizzes</i> to assess whether a student has the necessary prerequisite skills for success in each Module. • Use <i>Response to Intervention Skill Post-Tests</i> to assess mastery of prerequisite skills.	 T1, T2, and T3 skills • Assign the <i>Personal Math Trainer</i>, which will create standards-based practice for all students and customized intervention when necessary. Progress Monitoring • Use the <i>Personal Math Trainer</i> to assess a student's mastery of skills.  T2 skills • Use <i>Math on the Spot</i> tutorial videos to help students review skills taught in Middle School.  T3 skills • Use <i>Building Block Skills</i> worksheets for struggling students who require additional intervention.

Recommendations for Intervention

Tier 1	For students who require small group instruction to review lesson skills taught in Integrated Math 1.
Tiers 2–3	For students who require strategic or intensive intervention with prerequisite skills needed for success in Integrated Math 1.
Tiers 1–3	Intervention materials and the <i>Personal Math Trainer</i> are designed to accommodate the diverse skill levels of students at all levels of intervention.

DIAGNOSIS

Tier 2 Module Pre-Tests (*RTI ancillary*)
Tier 2 Are You Ready? Quizzes (*Student Edition*)
Tier 1 Ready to Go On? Quizzes (*Student Edition*)



INTERVENE

Use **Tier 1** Reteach and/or **Tier 2** Skill Worksheets (*RTI ancillary*).

- Uncluttered with minimum words to help all students, regardless of English acquisition
- Vocabulary presented in context to help English learners and struggling readers
- Multiple instructional examples for students to practice thinking-aloud their solutions

Use **Tier 2** Skill Teacher Guides (*RTI ancillary*).

- Explicit instruction and key teaching points
- Alternate strategies to address the different types of learners
- Common misconceptions to develop understanding of skills
- Visual representations to make concept connections
- Checks to fine-tune instruction and opportunities for immediate feedback



MONITOR PROGRESS

Tier 2: Skill Post-Tests (*RTI ancillary*)
Tier 1–2: Assessment Readiness (*Student Edition*)
Tier 1–3: Leveled Module Quizzes (*Assessment Resources online*)



Use **Tiers 1–3** online additional intervention, practice, and review materials.

- | | |
|--|---|
| <ul style="list-style-type: none"> • Personal Math Trainer • Math on the Spot videos • Building Block Skills worksheets with Teacher Guides | <ul style="list-style-type: none"> • Differentiated Instruction with leveled Practice, Reading Strategies, and Success for English Learners worksheets |
|--|---|

Houghton Mifflin Harcourt
Integrated Math I ©2015

correlated to the

Common Core State Standards for Mathematics
Mathematics I

Standards	Descriptor	Citations
Standards for Mathematical Practice		
SMP.1	Make sense of problems and persevere in solving them.	<i>Integrated throughout the book. Examples:</i> SE: 15, 16, 40, 42, 53, 60-61, 66, 97-99
SMP.2	Reason abstractly and quantitatively.	<i>Integrated throughout the book. Examples:</i> SE: 5, 7-8, 13-14, 27-38, 52, 65, 67, 70, 98-99
SMP.3	Construct viable arguments and critique the reasoning of others.	<i>Integrated throughout the book. Examples:</i> SE: 31, 35, 52, 65, 125, 147, 156, 167, 201, 279
SMP.4	Model with mathematics.	<i>Integrated throughout the book. Examples:</i> SE: 45-54, 55-66, 127-136, 175-186, 301-308, 451-466
SMP.5	Use appropriate tools strategically.	<i>Integrated throughout the book. Examples:</i> SE: 27-29, 140, 269, 309, 456-457, 777-778, 781, 789
SMP.6	Attend to precision.	<i>Integrated throughout the book. Examples:</i> SE: 17-18, 27-38, 68, 179-180, 615-616
SMP.7	Look for and make use of structure.	<i>Integrated throughout the book. Examples:</i> SE: 45-46, 53, 138-139, 175-186, 188, 199-200
SMP.8	Look for and express regularity in repeated reasoning.	<i>Integrated throughout the book. Examples:</i> SE: 138-139, 156-160, 221-226, 637-640

Standards		Descriptor	Citations
Standards for Mathematical Content			
N-Q	Quantities		
Reason quantitatively and use units to solve problems			
N-Q.A.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	SE: 15–26, 27–38, 301–308, 389–400, 401–416, 417–428	
N-Q.A.2	Define appropriate quantities for the purpose of descriptive modeling.	SE: 5–14, 15–26, 45–54, 301–308	
N-Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	SE: 27–38	
A-SSE	Seeing Structure in Expressions		
Interpret the structure of expressions			
A-SSE.A.1	Interpret expressions that represent a quantity in terms of its context.*	SE: 45–54	
A-SSE.A.1a	Interpret parts of an expression, such as terms, factors, and coefficients.	SE: 45–54	
A-SSE.A.1b	Interpret complicated expressions by viewing one or more of their parts as a single entity.	SE: 45–54	
Write expressions in equivalent forms to solve problems			
A-SSE.A.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.	SE: 655–666	
A-SSE.A.3c	Use the properties of exponents to transform expressions for exponential functions.	SE: 655–666	

Standards	Descriptor	Citations
A-CED	Creating Equations	
Create equations that describe numbers of relationships		
A-CED.A.1	Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i>	SE: 55–66, 73–80, 81–92, 709–720
A-CED.A.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	SE: 127–136, 239–248, 249–260, 261–268, 735–748
A-CED.A.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.	SE: 55–66, 73–80, 301–308, 323–334, 533–546, 547–556, 557–570
A-CED.A.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	SE: 67–72
A-REI	Reasoning with Equations and Inequalities	
Understand solving equations as a process of reasoning and explain the reasoning.		
A-REI.A.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	SE: 5–14, 815–826
Solve equations and inequalities in one variable		
A-REI.B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	SE: 55–66, 67–72, 73–80, 81–92

Standards	Descriptor	Citations
Solve systems of equations.		
A-REI.C.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	SE: 515–526
A-REI.C.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	SE: 479–490, 491–502, 503–514, 515–526
Represent and solve equations and inequalities graphically.		
A-REI.D.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	SE: 199–210, 239–248, 249–260, 261–268
A-REI.D.11	Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*	SE: 309–322, 709–720, 735–748
A-REI.D.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	SE: 323–334, 547–556

Standards		Descriptor	Citations
F-IF		Interpreting Functions	
Understand the concept of a function and use function notation.			
F-IF.A.1		Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.	SE: 115–126, 127–136, 137–148
F-IF.A.2		Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	SE: 127–136, 137–148, 663–676
F-IF.A.3		Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	SE: 155–164, 165–174, 175–186
Interpret functions that arise in applications in terms of the context.			
F-IF.B.4		For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i> *	SE: 105–114, 211–220
F-IF.B.5		Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.*	SE: 721–734
F-IF.B.6		Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*	SE: 221–232

Standards	Descriptor	Citations
Analyze functions using different representations.		
F-IF.C.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.	SE: 199–210, 211–220, 281–294, 239–248, 609–622, 623–636, 637–648, 667–680
F-IF.C.7a	Graph linear and quadratic functions and show intercepts, maxima, and minima.	SE: 199–210, 211–220, 239–248
F-IF.C.7e	Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	SE: 663–676, 677–690, 721–734
F-IF.C.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	SE: 281–294, 691–702
F-BF	Building Functions	
Build a function that models a relationship between two quantities.		
F-BF.A.1	Write a function that describes a relationship between two quantities.	SE: 165–174, 175–186, 649–662, 691–702, 709–720, 721–734
F-BF.A.1a	Determine an explicit expression, a recursive process, or steps for calculation from a context.	SE: 165–174, 175–186, 649–662, 721–734
F-BF.A.1b	Combine standard function types using arithmetic operations.	SE: 691–702
F-BF.A.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*	SE: 155–164, 165–174, 649–662

Standards	Descriptor	Citations
Build new functions from existing functions.		
F-BF.B.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.	SE: 269–280, 691–702
F-LE		
Linear, Quadratic, and Exponential Models		
Construct and compare linear, quadratic, and exponential models and solve problems.		
F-LE.A.1	Distinguish between situations that can be modeled with linear functions and with exponential functions.	SE: 199–210, 721–734, 735–748, 749–762
F-LE.A.1a	Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	SE: 199–210, 749–762
F-LE.A.1b	Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	SE: 199–210, 695–708
F-LE.A.1c	Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	SE: 721–734, 735–748, 749–762
F-LE.A.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	SE: 155–164, 165–174, 175–186, 199–210, 637–648, 649–662, 663–676, 709–720, 721–734
F-LE.A.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	SE: 637–648, 749–762
Interpret expressions for functions in terms of the situation they model		
F-LE.B.5	Interpret the parameters in a linear or exponential function in terms of a context.	SE: 211–220, 221–232, 269–280, 435–450, 451–466, 533–546

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Standards	Descriptor	Citations
G-CO	Congruence	
Experiment with transformations in the plane.		
G-CO.A.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	SE: 775–788, 789–800, 833–842, 843–856
G-CO.A.2	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	SE: 801–814, 833–842, 843–856, 857–870, 885–896
G-CO.A.3	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	SE: 871–878
G-CO.A.4	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	SE: 833–842, 843–856, 857–870
G-CO.A.5	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	SE: 801–814, 833–842, 843–856, 857–870, 885–896, 897–908

Standards	Descriptor	Citations
Understand congruence in terms of rigid motions.		
G-CO.B.6	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	SE: 833–842, 843–856, 857–870, 885–896, 897–908
G-CO.B.7	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	SE: 909–920, 989–1000, 1001–1014, 1015–1024, 1025–1036
G-CO.B.8	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	SE: 1001–1014, 1015–1024, 1025–1036
Prove geometric theorems.		
G-CO.C.9	Prove theorems about lines and angles.	SE: 815–826, 933–944, 945–954, 955–964, 965–974, 1141–1150
G-CO.C.10	Prove theorems about triangles.	SE: 1001–1014, 1015–1024, 1025–1036, 1083–1096, 1097–1110, 1111–1122, 1129–1140, 1141–1150, 1151–1164, 1165–1174, 1203–1216, 1291–1306
G-CO.C.11	Prove theorems about parallelograms.	SE: 1189–1202, 1203–1216, 1217–1228, 1229–1240, 1307–1318
Make geometric constructions.		
G-CO.C.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).	SE: 775–788, 789–800, 843–856, 955–964, 965–974, 1043–1052, 1111–1122, 1129–1140, 1141–1150, 1151–1164, 1165–1174
G-CO.C.13	Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	SE: 1043–1052

Standards	Descriptor	Citations
G-GPE	Expressing Geometric Properties with Equations	
Use coordinates to prove simple geometric theorems algebraically		
G-GPE.B.4	Use coordinates to prove simple geometric theorems algebraically	SE: 775–778, 1129–1140, 1151–1164, 1165–1174, 1265–1278, 1279–1290, 1291–1306, 1307–1318
G-GPE.B.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	SE: 975–982, 1129–1140, 1151–1164, 1165–1174, 1265–1278, 1279–1290, 1291–1306, 1307–1318
G-GPE.B.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.	SE: 1291–1306, 1319–1334
S-ID	Interpreting Categorical and Quantitative Data	
Summarize, represent, and interpret data on a single count or measurement variable.		
S-ID.A.1	Represent data with plots on the real number line (dot plots, histograms, and box plots).	SE: 389–400, 401–416, 417–428
S-ID.A.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	SE: 377–388, 389–400, 401–416, 417–428
S-ID.A.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	SE: 389–400

Standards	Descriptor	Citations
Summarize, represent, and interpret data on two categorical and quantitative variables.		
S-ID.B.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	SE: 347–358, 359–370
S-ID.B.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.	SE: 435–450, 451–466, 735–748
S-ID.B.6a	Fit a function to the data; use functions fitted to data to solve problems in the context of the data. <i>Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.</i>	SE: 435–450, 735–748
S-ID.B.6b	Informally assess the fit of a function by plotting and analyzing residuals.	SE: 451–466, 735–748
S-ID.B.6c	Fit a linear function for a scatter plot that suggests a linear association.	SE: 435–450, 451–466
Interpret linear models.		
S-ID.C.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	SE: 301–308, 435–450
S-ID.C.8	Compute (using technology) and interpret the correlation coefficient of a linear fit.	SE: 451–466
S-ID.C.9	Distinguish between correlation and causation.	SE: 435–450