Lesson Planning

This module describes the Math-U-See curriculum's 4-Step Approach and how to plan individual class sessions using it. It includes three templates for planning the multiple days that a lesson requires. The needs of teachers who teach multiple levels or lessons within a level are also addressed. For those teachers who have the assistance of paraprofessionals, suggestions are given for how to help them become familiar with the Math-U-See curriculum and prepare for each lesson.

One lesson in the curriculum will take several days to complete. The length of time needed depends on a variety of factors, but students should demonstrate mastery before moving on.

4-Step Approach Overview

Use placement tests to determine correct level.

Step 1: Instructor Prepares for the Lesson

- Watch video lesson.
- Review Instruction Manual.

Step 2: Instructor Presents Lesson

- Model with manipulatives.
- Use Math-U-See vocabulary.
- Use Build, Write, Say process.
- Video lesson can supplement but not replace instruction by teacher.

Step 3: Students Practice for Mastery

Goal is to move from guided to independent practice.

- Assign a Lesson Practice page. Students should be using the manipulatives.
- Assess students' work and understanding.

Can the students Teach Back the concept to demonstrate mastery?

Yes
Go to Step 4.

No
Identify students' needs. Use additional instruction/ practice.

Step 4: Students Progress after Mastery

- Assign Systematic Review pages. Students should not be using the manipulatives unless an accommodation is required.
- Continue to assess students' understanding.

Do the students demonstrate mastery of the concepts?

The lesson test should not be administered until the teacher is certain mastery is achieved.

Yes
Students take lesson test.

No
Identify students' needs. Use additional instruction/ practice.

Lesson Test

- Have students take lesson test.
- Continue to assess students' understanding.

Do the students demonstrate mastery of the concepts?

Yes
Introduce new lesson.

No
Identify students' needs. Use additional instruction/ practice.

Additional Instruction/Practice

- Continue using manipulatives and/or visual representations to reteach lesson.
- Have students complete additional workbook pages with a focus on concepts not yet mastered.
- Provide learning activities that practice the concept. (See Learning Activities module for ideas and resources.)
- Create worksheets using the online Math-U-See Worksheet Generator.
- Use the Online Drills Application to practice math facts.

Expanded Explanation of the 4-Step Approach

Preliminary to Instruction

Placement
Begin with the Math-U-See curriculum's placement process, which is detailed in the Placement module, in order to determine the best entry level for students in the curriculum.

Unit Pretest
Each Math-U-See level is divided into units, and a unit test is provided in the accompanying Tests booklet. A unit test is given twice per student: once before instruction and once after the last lesson in the unit has been completed. At the start of every unit, administer the unit test as the unit pretest. Use the results of the unit pretest to inform your planning.

Proficiency criteria are assigned based on the pre- and post-unit tests. The criteria, their abbreviations, and the score ranges are as follows:

Advanced (A)	90–100%
Proficient (P)	80–89%
Nearing Proficiency (NP)	70–79%
Beginning Steps (BS)	<70%

This information is entered into the Record Keeping Form discussed in the Record Keeping module.

Step 1: Teacher Prepares for the Lesson
The teacher should watch the video lesson and read the Instruction Manual to ensure appropriate delivery of concepts and vocabulary. The Math-U-See program uses successful but unique strategies for some basic concepts.

Instruction

Step 2: Teacher Presents the Lesson's Concepts
The teacher teaches the concepts to the students, modeling the Build, Write, Say process.

Build: Use the manipulatives to model the problem.

Write: Show the problem step-by-step on paper as it is built.

Say: Explain the steps used to figure out the answer.

Students may watch the video lesson with the teacher, but the video lesson must not replace direct instruction by the teacher. Both the teacher and the students use the Build, Write, Say process. Give ample opportunities for students to practice the new concept prior to working in the Student Workbook. During this practice, use problems from the Instruction Manual and Lesson Practice pages. Personalize word problems from the Student Workbook to the students, school, and community. If students are struggling with a concept, reteaching the concept is essential before a Lesson Practice page is assigned.

Step 3: Students Practice for Mastery
Assign a Lesson Practice page. Assess the students' work and understanding, and determine whether the students are demonstrating mastery of the concepts. If not, continue reteaching and assigning additional workbook pages, focusing students on problems that address the concepts not yet mastered. This is easily done by highlighting only the problems the students should Build, Write, and Say. Not every student needs to complete every worksheet in the Student Workbook. "Zip, Don't Skip," is a pacing tool. The teacher identifies and spends time on mathematical concepts where students are struggling and "zips" through concepts for which students have demonstrated conceptual understanding.

Frequent, short periods of practice are shown to be effective for retention, so refer to the suggestions included in the Learning Activities module. Directions for the online Worksheet Generator and Online Drills Application are included in the Math Facts module.

Step 4: Students Progress after Mastery
Mastery is not just memorization of a math fact or the filling in of worksheets but the ability to explain the mathematical concept using the Build, Write, Say approach. Additional methods of assessment may include:

- fluency in math facts
- correctly solving a word problem that uses the lesson's concepts
- creating a pictorial representation of the concept
- explaining how to correct a wrong answer
- completing an exit slip
- being able to mark "Meets Expectations" for all the rows in the Student Self-Reflection

Once students demonstrate mastery of the lesson's concepts, assign a Systematic Review page. Again, monitor students' accuracy and, if needed, reteach and assign additional pages, focusing the students on problems that address the concepts that need to be reinforced. Be sure to review any Systematic Review pages skipped for important content.

After Instruction

Lesson Test
A lesson test should not be administered until the teacher is certain that the students have mastery of the new concepts as well as review concepts. Administer the lesson test with any required modifications. Solutions are found in the Instruction Manual.

Unit Posttest
At the end of a unit, administer the unit test again as the unit posttest. To facilitate the second administration of the unit test, all of the unit tests can be accessed in the online Professional Access.

Repeat
If scheduling allows, immediately administer the next unit pretest.

Lesson Planning Overview

The examples presented use an hour-long class session and lessons from the *Beta* level as a basis. Each session begins with a brief math activity called Minds Ready for Math to get students thinking mathematically. The last five minutes of class should include clean up and a quick closure activity, such as a whole-group math activity. The remaining class time should be used to work through a lesson using the 4-Step Approach according to your chosen grouping structure. (Guidelines on grouping structures are provided in the Grouping Structures section below.)

Complete the weekly lesson plans according to the appropriate grouping structure. Sample weekly lesson plans are included for one-on-one and small group structures. Blank forms for each of the lesson plan templates are included in this module or can be downloaded as a fillable PDF from the online Professional Access.

Grouping Structures

In order to increase student engagement, teachers may wish to employ a variety of grouping structures within a class session. Below are some recommendations and sample lesson plans for primary instructional groupings beyond whole-group. Regardless of the chosen primary structure, it is recommended that class sessions begin and end with whole-group activities to build community and review concepts beneficial to all students.

One-on-One

One-on-one instruction may be a good option in a pull-out model or if the teacher is working with a group of six or fewer students and has the ability to meet with each student individually each class session. Students are working at an individualized pace, and students within the whole group will likely be at different places in the program.

Maintaining individual student folders containing each student's schedule, applicable worksheets, and a listing of other materials and activities can help provide direction for students while the teacher is meeting individually with others.

Sample One-On-One Student Schedule *(Luis)*

Student Schedule Luis

Monday	Tuesday	Wednesday	Thursday	Friday
• Practice the 7 facts online. [Luis still struggles with these.] • Watch the video for Beta Lesson 7. Think of a question to ask your teacher. • Meet with your teacher. • Complete 7A in your Student Workbook.	• Complete 7B in your workbook. • Practice the 8 facts online. • Meet with your teacher. • Write a word problem that uses two-digit addition. Show the solution.	• Ask Jada to build and solve your word problem. Check her work. [Alternately, Luis can correct his work on 7B.] • Complete 7C in your workbook. [Assign 7C if more practice is needed; assign 7D if mastery is demonstrated.] • Play Race to 100 by yourself. See if you can finish before you meet with your teacher. [Luis needs to practice decomposition of numbers.] • Meet with your teacher.	• Meet with your teacher. • Take the Lesson 7 test. Be sure to do your best! • Complete 7G in your workbook.	• Play Basket of Problems for two-digit addition. See how many you can finish before you meet with your teacher. • Meet with your teacher. • Make a board game with addition problems. Be sure to show all the answers to the problems. [Luis enjoys creative projects. We can also use his board game as a learning center.]
Group Time	Group Time	Group Time	Group Time	Group Time

Sample One-On-One Teacher Schedule

Sample Teacher Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
Derek: Check Lesson 27 test; do mental math page 101.	Mei: Review and prepare for the Lesson 23 test.	Winona: Review multi-digit addition. Demonstrate addition with money.	Luis: Check work and review for Lesson 7 test.	Jada: Do 16A together. Assign 16B and 16C.
Jada: Check work on 15A from last week. Teach back. Assign 15B and 15C or 15D and 15E.	Derek: Model and scaffold five-digit subtraction with regrouping.	Mei: Check lesson test; mental math page 92.	Winona: Check 12A. Start 12B together.	Luis: Explain board game project for practicing two-digit addition.
Luis: Model and scaffold multi-digit addition with regrouping.	Jada: Teach back. Prepare for Lesson 15 test.	Derek: Check work on 28A and 28B. Teach back. Assign either 28C or 28D.	Mei: Model and scaffold four-digit subtraction with regrouping.	Winona: Use 12C to teach back. Assign 12D and 12E.
Winona: Do 11E together. Assign Lesson 11 test.	Luis: Check work on 7A and 7B. Teach back. Assign either 7C (if not mastered) or 7D (if mastered).	Jada: Check Lesson 15 test; mental math page 60.	Derek: Check work on 28C or 28D. Prepare for lesson test.	Mei: Check work on 26A and 26B. Assign either 26C or 26D.
Mei: Tell time on the block clock and then on a regular clock.	Winona: Check Lesson 11 test. Practice skip counting by 10s and 5s orally.	Luis: Check work on 7C or 7D.	Jada: Review place value through hundreds. Scaffold reading and writing numbers in the thousands.	Derek: Check Lesson 28 test and 28F.
Group Game: Fishin' for Tens [Most students could use the practice in composing tens.]	Group Game: Beach Ball Toss [Quick review to keep addition facts fresh.]	Group Game: Both Sides the Same [Luis will need this skill for the unit test; good review for all students.]	Group Game: Race to 100 [Review skills for the state assessments.]	Celebration: Derek improved his accuracy on the 3s facts; Jada mastered perimeter; Luis wrote a great word problem; Winona said the 9s facts without errors; Mei did not reverse any numbers.

Small Group

If the group is too large to meet with each student individually during each class session but includes students of varying needs and abilities, small group instruction may be appropriate. Students may be grouped according to unit pretest results or by lessons dealing with related skills. It is important to keep groups flexible and shift students from group to group as their individual needs dictate.

With small group instruction, the teacher meets with each group once per class session. Students in other groups work to complete worksheets or other learning activities assigned during their daily meeting.

Sample Small Group Student Schedule *(Group A)*

Sample Student Schedule Group A

Monday	Tuesday	Wednesday	Thursday	Friday
Warm-Up: • Meet with your teacher.	Warm-Up: • Meet with your teacher.	Warm-Up: • Meet with your teacher.	Warm-Up: • Meet with your teacher.	Warm-Up: • Meet with your teacher.
Classwork: • Play Zombie and the Brain with your partner. Work through page 7A. • When you finish, go to the computer station.	Classwork: • Complete 7B by yourself. [Use problems 5-9 as a formative assessment to plan tomorrow's activities.] • When you finish, go to a game station.	Classwork: • Complete the page the teacher gives you. [Students who have demonstrated mastery move to 7D; others complete 7C. Use problems 5-9 for reassessment.] • When you finish, go to the word problem station. [Students write a word problem using skill taught and show solution.]	Classwork: • Complete the page the teacher gives you. [Students who have demonstrated mastery work on 7D or E (if more review needed) or can move to 7F. Others complete online worksheet, which will be used for reassessment.] • When you finish, go to the tablet station. [This could also be a project station.]	Classwork: • Take the lesson test. • When you finish, work on page 7F or go to the video station. [Students who have finished 7F can work on an enrichment activity.]
Group Time	Group Time	Group Time	Group Time	Group Time

Sample Small Group Teacher Schedule

Sample Teacher Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
Group A: Watch Lesson 7 video. Model while students shadow.	Group A: Observe and correct as students model problems from 7A.	Group A: Students who scored 4/5 teach back problems from 7B: assign 7D. Other students work on 7C for reassessment.	Group A: Students who scored 4/5 teach back problems from 7C; assign 7D/E/F (mastery) or online worksheet.	Group A: Work only with those students who still have not demonstrated mastery.
Group B: Watch Lesson 13 video. Model while students shadow.	Group B: Observe and correct as students model problems from 13A.	Group B: Students who scored 4/5 teach back problems from 13B; assign 13D. Other students work on 13C for reassessment.	Group B: Students who scored 4/5 teach back problems from 13C; assign 13D/E/F (mastery) or online worksheet.	Group B: Work only with those students who still have not demonstrated mastery.
Group C: Watch Lesson 20 video. Model while students shadow.	Group C: Observe and correct as students model problems from 20A.	Group C: Students who scored 4/5 teach back problems from 20B; assign 20D. Other students work on 20C for reassessment.	Group C: Students who scored 4/5 teach back problems from 20C; assign 20D/E/F (mastery) or online worksheet.	Group C: Work only with those students who still have not demonstrated mastery.
Circulate and help as needed.	Circulate and help as needed.	Circulate and help as needed.	Circulate and help as needed.	Circulate and help as needed.
Group Game: Fishin' for Tens [Most students could use the practice in composing tens.]	Group Game: Beach Ball Toss [Quick review to keep addition facts fresh.]	Group Game: Both Sides the Same [Group A will need this skill for the unit test; good review for all students.]	Group Game: Race to 100 [Review skills for the state assessments.]	Celebration: [Note specific items of praise.]

Co-Teaching

Co-teaching is an excellent option when an additional teacher, paraprofessional, or even a committed parent volunteer is available. Options for utilizing co-teaching will depend on the resources available, but may include:

- Stations - Students rotate among a given combination of stations for a set amount of time. Stations may include one teacher providing direct instruction to a group, independent practice, games, partner work, online learning activities, or assessment. The other co-teacher monitors the remaining stations.
- One teaches, one supports - One teacher takes primary responsibility for instructing the small groups while the other teacher circulates around the classroom assisting individuals as needed.
- Pull-out/Push-in - One teacher manages most of the class while the other teacher works with a designated small group or individual students inside or outside the classroom.

Effectively Utilizing Paraprofessionals

To help ensure consistency for students between teacher instruction and paraprofessional assistance, paraprofessionals should watch the video lesson and take notes on the Lesson Planner for Paraprofessionals. It is helpful for paraprofessionals to keep all the lesson planners in a binder for reference. Following these suggestions will facilitate consistent concept reinforcement and will avoid student confusion.

A blank Lesson Planner for Paraprofessionals is provided in this module or it can be downloaded as a fillable PDF from the online Professional Access.

Multi-Day Lesson Plan

Complete a Multi-Day Lesson Plan for each lesson taught. This form is a one-page reference sheet organized according to the 4-Step Approach. The form organizes the material from the lesson, lists what example problems will be used, highlights important vocabulary, and identifies the requirements for mastery. It may be used for whole-group planning. Alternatively, when using other grouping structures, teachers may find it helpful to complete a Multi-Day Lesson Plan for each lesson, then incorporate content into specific weekly schedules for individual students. A sample completed Multi-Day Lesson Plan is included for *Beta* Lesson 7.

Sample Multi-Day Lesson Plan for _Beta_, Lesson _7_

PRELIMINARY TO INSTRUCTION

Step 1 – Prepare for the Lesson *Instruction page(s)* 37-40

Objectives: BE.7.a - Students will be able to add two-digit numbers (with regrouping) using various strategies.

Vocabulary: Regroup/carry - convert numbers from one place value to another (compose tens). Place-value notation = expanded form.

Strategies: "It's okay to visit, but there's no place like home." Carry the ten home.

Materials Needed: IM, DVD, IBK, bag/basket, cut-up problems, playing cards, tablets

Teacher:

- ☑ Watch the video lesson
- ☑ Review strategies and examples in Instruction Manual
- ☑ Note vocabulary from video
- ☑ Check for manipulative use
- ☑ Determine review or enrichment needs:

  Review limit of nine in each place value. Use closing activity for Unit Test I review.

INSTRUCTION

Time		
1–2 minutes	**Minds Ready for Math** M: place value, T: making 10, W: skip counting by 2's, Th: making 10, F: place value	
10–15 minutes	**Step 2 – Present the Lesson's Concepts** Build - model using integer blocks, placing composed ten above first addend when regrouping. Write problem in standard and place-value notation/ expanded form. Say - explain the "why" behind the problem, making sure to reiterate the meaning of regrouping and re-emphasize that with place value "there's no place like home."	**Teacher and Students:** ☑ Watch the video lesson ☑ Teach concepts ☑ Build ☑ Write ☑ Say
35–40 minutes	**Step 3 – Students: Practice for Mastery** Lesson Practice 7A using "Zombie and the Brain," switching roles. Lesson Practice 7B 1–6 formative assessment (teach back). Reteach and assign Lesson Practice 7C as needed. Learning Centers: Basket of Problems, Build a Wall (making 10), Fishin' for Tens, Online Drill Use Worksheet Generator for Basket of Problems and additional practice (if needed).	**What do the students need?** ☑ Zip, Don't Skip **Teacher:** ☑ Provide guidance, feedback ☑ Reteach as necessary: through observation, target specific problem areas **Students:** ☑ Lesson Practice ☑ Teach Back ☑ Systematic Review ☑ Learning Activities ☑ Lesson Test ☑ Unit Posttest
	Mastery Criteria Teach back a two-digit addition problem composing ten using place-value notation/expanded form. Correctly solve a related word problem. Fill out Student Self-Reflection with all marked "Meets Expectations" at close of lesson.	
	Step 4 – Students Progress after Mastery Systematic Review 7D (7E, 7F as needed) and corrections; learning centers; A&E page; create a word problem and present (group)	
	Lesson Test/Unit Posttest Test 7/Unit Test I	
5 minutes	**Clean Up and Closure:** Unit Test I Review - M: 7A #10, T: rounding to 10, W: 7E #14, Th: 7D #12, F: ordering numbers	☑ Whole-group word problem or game ☑ Unit posttest review ❑ Student learning share

Independent Learning Activities

The chart below provides suggestions for independent learning activities that may be appropriate while students are working towards mastery and after mastery has been achieved. More information on learning centers is provided in the Learning Activities module.

Independent Learning Activities

Before Mastery

- Worksheet from the online Worksheet Generator
- Online Drills Application
- Corrections of errors on a previous workbook page
- App practice
- Learning center
- Teach Back practice (video recorder)
- Watch a student-created instructional video

After Mastery

- Application and Enrichment workbook page
- Review of previous concepts for test prep
- Be Mr. Demme! (student-created instructional video)
- Peer tutoring
- Word problem creation (perhaps with an accompanying poster or PowerPoint slide)
- Creating a math board game
- App practice
- Learning center
- Online research of an interesting math topic

Strengthening the Foundation in Strategies and Math Facts

As referenced in the Placement module, some students may demonstrate conceptual mastery at a higher level but not demonstrate fluency in basic facts. It is important to allow students to continue to be challenged and advance conceptually while simultaneously working to strengthen the foundation with basic facts. Teachers working with these students should incorporate the suggestions that follow into their weekly lesson plans. The slot reserved for the closing activity is an excellent time to incorporate basic fact practice after the corresponding strategy has been introduced earlier in the class session.

Suggestions for Students Who Place into a Higher Level but Need *Alpha* Strategies

Initially, instruct students at the *Alpha* level to review and practice foundational math concepts as needed for 2–3 weeks. Based upon individual need, a student may need to focus on all or part of a lesson. The following is a list of concepts students should fully grasp.

Place value:

- **Lesson 1:** Place Value and the Manipulatives
- **Lesson 2:** Counting to 20—focus on the place value and regrouping principles in the second part of the lesson

Colors of unit blocks:

- **Lesson 3:** Unit Bars

Addition facts strategies:

- **Lesson 4:** Addition: + 0
- **Lesson 5:** Addition: + 1, Commutative Property
- **Lesson 6:** Counting to 100, Skip Counting by 10
- **Lesson 7:** Addition: + 2
- **Lesson 9:** Addition: + 9, Mental Math
- **Lesson 10:** Addition: + 8
- **Lesson 12:** Addition: Doubles
- **Lesson 14:** Addition: Doubles + 1
- **Lesson 15:** Addition: Making 10
- **Lesson 16:** Addition: Making 9
- **Lesson 17:** Addition of the Extras: 3 + 5, 4 + 7, 5 + 7

Solving for the unknown:

- **Lesson 8:** Solving for the Unknown
- **Lesson 12:** See Teaching Tip 2 at the end of the lesson
- **Lesson 17:** Addition of the Extras—last section of the lesson

Word problems:

» **Lesson 4:** See section on Word Problem Tips

Subtraction facts strategies:

» **Lesson 18:** Introduction to Subtraction

» **Lesson 19:** Subtraction: − 1 and − 0

» **Lesson 20:** Subtraction: − 2

» **Lesson 21:** Subtraction: − 9

» **Lesson 22:** Subtraction: − 8

» **Lesson 23:** Subtraction: Doubles

» **Lesson 24:** Subtraction: Making 10

» **Lesson 25:** Subtraction: Making 9

» **Lesson 26:** Subtraction: Extras

» **Lesson 27:** Subtraction by 7, or Adding Up by 3

» **Lesson 28:** Subtraction by 6, or Adding Up by 4

» **Lesson 29:** Subtraction by 5, or Adding Up by 5

» **Lesson 30:** Subtraction by 3 and 4

Continue to review concepts and strategies taught in *Alpha* with each session. Provide review and practice facts.

A suggested model is to conduct a short mini-lesson to review and practice facts (5–7 minutes) and to begin teaching *Alpha* strategies. Then, spend the remainder of the session instructing at the higher level. Conclude the lesson with additional practice with basic facts or fact strategies for 5 minutes.

Fact practice:

» See the Math Facts and Learning Activities modules for suggestions for math fact practice.

Suggestions for Students Who Place into a Higher Level but Need *Gamma* Strategies

Initially, instruct students at the *Gamma* level to review and practice foundational math concepts as needed for 2–3 weeks. Based upon individual need, a student may need to focus on all or part of a lesson. The following is a list of concepts students should fully grasp.

Skip Counting facts:

- **Lesson 3:** Skip Count by 2, 5, and 10
- **Lesson 9:** Skip Count by 9—first part of the lesson
- **Lesson 11:** Skip Count by 3
- **Lesson 13:** Skip Count by 6—first part of the lesson
- **Lesson 15:** Skip Count by 4—first part of the lesson
- **Lesson 17:** Skip Count by 7, Multiples of 10
- **Lesson 19:** Skip Count by 8—first part of the lesson

Building a rectangle with factors:

- **Lesson 1:** Rectangles, Area, and Factors
- **Lesson 7:** Area of a Rectangle and Square

Multiplication fact strategies:

- **Lesson 2:** Multiply by 1 and 0, Commutative Property
- **Lesson 4:** Multiply by 2—first part of the lesson
- **Lesson 5:** Multiply by 10—first part of the lesson
- **Lesson 6:** Multiply by 5—first part of the lesson
- **Lesson 10:** Multiply by 9
- **Lesson 12:** Multiply by 3—first part of the lesson
- **Lesson 14:** Multiply by 6
- **Lesson 16:** Multiply by 4—first part of the lesson
- **Lesson 18:** Multiply by 7 and Multiples of 100
- **Lesson 20:** Multiply by 8

Solving for the unknown:

- **Lesson 8:** Solving for the Unknown

Word problems:

- **Lesson 2:** See section on Word Problem Tips and Strategies for Word Problems

Continue to review concepts and strategies taught in *Gamma* until Lesson 20 with each session. A suggested model is to conduct a short mini-lesson to review and practice facts (5–7 minutes). Then continue with instruction at the higher level (15–20 minutes). Then spend approximately 5 minutes at the end of the lesson with additional practice with basic facts or fact strategies.

Fact practice:

» See the Math Facts and Learning Activities modules for suggestions for math fact practice.