Leader Guide for The Essentials Course 2 in ST Math Academy

- This guide is designed to be used in Professional Learning Communities or by any group of teachers who want to learn about ST Math together.
- The model assumed in this guide is a group working through the modules together. You can, of course, use the online content in whatever way you wish and refer to this guide for extra information or ideas for topics to discuss or things to think about.
- The Essentials is divided into two courses. One prepares new users to implement ST Math and the second provides information that helps educators get the most out of ST Math.
- Within each unit are modules that consist of expandable sections that contain the content.

Layout of this Guide

- Overview - a brief look at what is covered in the unit.
- Preparation - anything that needs to be done before starting the unit or reminders about technical requirements. Generally, teachers will need to have internet access and, if possible, the leader will need a way to share videos and some activities with the group.
- Walk-through of module.
- Note on Conditioning - the Academy is conditioned so that signed-in users see just the content that is applicable to their position, grade level, and sign-in type. Conditioned content is shown with a light orange background. Skip the sections that don't apply to you.

Questions? Answers to technical questions and access to resources can be found at ST Math Help (help.stmath.com).

Links within this guide: You may need to allow this document to open files or websites (Mac) or, on a PC, go to Edit (not File) > Preferences > Security (Enhanced) > Add File (select this file from File Explorer).

Course 2 - Monitoring Data and Supporting Students in ST Math

Unit 1 - Monitoring Data

Overview:

- Once teachers and students are using ST Math, the real fun (and work) begins.
- In the first unit, teachers will learn how to use data to understand what students are doing, using features that allow teachers to adjust what students play, and more about the metrics in ST Math.
- The second unit gives teachers insight into how students learn in ST Math (and all other subjects), how to help when the learning is tough, and where educators can get support.

Preparation:

- Teachers should have a computer or tablet with internet to access to their account and data.
- Also decide how you're going to handle the quizzes that record completion of each module. You can direct participants to go back and complete them at a later time or provide time for teachers to complete them in your session.

Information for Leaders:

Any teacher can create staff-managed classes. If your school uses rosters (e.g., Clever), those classes will be shown with an open lock meaning they are editable. Any student in the school can be added to those classes. For those not using a roster, teachers can create classes and add students by searching for them or using an Invitation Code.

For more information on staff-managed classes, check out

- Focus On: Creating and Managing Classes
- How do I create a staff-managed class and add students (rostered)?
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Course 1 - Getting Started with ST Math

Unit 1 - The Power of ST Math
- Three Things You Need to Know About ST Math
- The Science of ST Math
- The Student Experience

Unit 2 - Getting Ready
- Getting the Best Results
- Getting Students Ready
- Planning for the First Day

Course 2 - Monitoring Data and Supporting Students in ST Math

Unit 1 - Monitoring Data
- **Using Your Console**
- **Using Assignments**
- **Minutes and Puzzles**

Unit 2 - Supporting Students
- **The Problem Solving Process**
- **How and When to Help**
- **Finding Resources and Support**

Module 1 - Using Your Console		
Time (38 min)	**Section**	**What to Do:**
3 minutes	Intro	• Note: You may find that the features and functionality of the Console change during the year or over school breaks as we constantly improve. Refer to the FAQ section on ST Math Help (help.stmath.com) for the most up-to-date information. • Also: The emphasis on minutes and puzzles is based on research that clearly shows that the more students play, the better the results. The weekly goals can help teachers ensure their students are playing enough. • You'll notice that the design of the Console provides data at the class level and then similar data at the student level. • By using the dropdown at the top of the page, it's easy to move among classes or students while staying on the same console page. • Ideally, teachers will be following along in their own accounts looking at their own data during this walk-through so have all teachers sign in to their ST Math account.

10 minutes	My Classes - Your Home Page	• Use the labeled image to take a tour of the My Classes page.
		
		• In the console, click Home to be sure everyone is on the page that shows their class or classes.
		  • Have teachers note whether they are Rostered or Non-rostered in the upper right corner under their name.
		  • My Classes shows them their weekly totals for this week and last week and their average week for their classes.
		  • Have teachers scroll down for the minute and puzzle goals.
		  • Remind teachers that students with zero minutes or puzzles are not included in the averages.
		
		• All teachers (including those with rostered classes) can create new classes -- called "staff-managed" classes.
		  • If students are added to classes by the school or district, those schools are "rostered." Those classes can't be changed.
		  • Any student can be added to classes in picture-password (Non-rostered) schools.
		  • For rostered schools, only students in the school can be added to staff-managed classes.
		  • For everyone, students can be in multiple classes at once and staff-managed classes can be deleted. They are shown by an open lock.
		  • Before a staff-managed class can be deleted, all students must be removed by going to each student's page (Settings) and removing them from the class. Empty classes have a trashcan. Click it to delete the class.

		• Be sure teachers understand how they can rearrange or remove columns so they can focus on the metrics they're most interested in.
		• Suggest teachers practice using the filters.
		
		A Note on Progress
		• Each grade level has a value considered to be a year's worth of puzzles. Percent progress is figured as a percent of that number.
		  • 750 puzzles for PK,
		  • 1000 puzzles for TK,
		  • 2500 puzzles for K and Grade 1
		  • 3000 puzzles for Grades 2-4
		  • 2500 puzzles for Grade 5
		  • 3000 puzzles for Grades 6-7
		  • 2400 puzzles for Grade 8
		• Having a standard goal allows students who are playing assignments or Objectives from other grade levels to have their work count towards the class progress.

10 minutes	Students Tab	• Click on a class to open the Students tab which shows all the students in the class. Point out the elements shown in the first slide.
		• The slide show presents the following scenarios. Have teachers look for students with similar data.
		  • Unusual change from last week to this week
		  • Alert
		  • Something to celebrate
		
		A Note on Alerts
		• Students who have lost all JiJis (usually two) more than nine times receive a Many Tries Alert. This is usually a sign that a student is in a place where they're really learning. They may need you need to facilitate their problem solving (never give the answer, just ask questions) or really struggling.
		• You can learn more about good stuck and bad stuck in How and When to Help in the next Unit.
		• There are situations, however when the productive struggle becomes unproductive. In those cases, you can click the Alert and allow the student to have unlimited JiJis for that level. Learn more in Focus On: Differentiating ST Math.

5 minutes	Usage Tab	• Throughout this tab, think about how to celebrate goals of time spent and puzzles achieved. Point out the elements shown in the first slide. • The slide show reviews what each section can show you. Have teachers look for patterns or interesting data in the Productivity and Sign-Ins sections. • You can also print a Parent Report for each student from this tab. If you go to a Student's page, Usage tab, you can print individual Parent Reports.
5 minutes	Objectives Tab	• Be sure to explore both the Journey and Assignments sections of the class Objectives tab.
5 minutes	Standards Tab	• The Standards Tab has a lot of information. When you're just starting to use ST Math, it's best to just look at the domains to see how your class is doing in meeting the grade level standards.
	Quiz	

Module 2 - Using Assignments		
Time (16 min)	**Section**	**What to Do:**
3 minutes	Intro	• The Assignments feature allows you to assign Objectives from the same grade level or any other grade level (prek - 8) to individual students or the entire class. • They can be used for remediation or extension as well as a way to have all students working on a particular Objective. • The graphic showing the differences between the grade-level Journey and Assignments can be found on the Objectives tab. • NOTE: On both the Class and Individual Assignments pages, there is a toggle that allows you to turn Student Choice on or off. If you want students to do the Assignments in a particular order, turn Student Choice off.
5 minutes	When to Use Assignments	• We recommend keeping students in their correct grade level Journey. Very often the design of the Objectives, which starts at a very basic level even at upper grades, allows students to consolidate their understanding and successfully complete the grade level material. • Sometimes, however, students need additional practice or review. That is a perfect time to use Assignments. • Students who need an additional challenge can be assigned additional Objectives but we suggest that you assign the Challenge games or have students go deeper into grade level content. Visit the topic on finishing the Journey on ST Math Help. • Another important use of Assignments to ensure that concepts tested on year-end tests are covered. Although ST Math is self-paced and allowing students to work through the Journey as designed has been shown to give the best results, you may want students to complete important Objectives before testing.
5 minutes	Class and Individual Assignments	• It's easy to assign an Objective to either a student or a class. Navigate to the Objective either from the Class Objectives tab (easy if it's in the class's grade level) or Curriculum > All Learning Objectives (if it's in another grade level). • Click on the Assign This Objective button, • On the class Objectives tab/Assignments, you can rearrange the order of the Assignments by using the arrows and viewing those that have been completed or removed by the teacher. • For class Assignments, the graph shows the number of students playing the Objective (number by the face), how many have completed the Objective (number below and the solid green), and how many are working in the Objective (light green stripes) out of the total class. • Individual assignments show the progress students have made on their assignments including pre- and post-quiz scores.

3 minutes	Changing a Student's Journey	• We do not recommend changing a student's grade level unless there is a specific reason, e.g., an IEP. • To change a student's grade level, go to the student's Settings tab and change the grade level under Curriculum.
	Quiz	

Module 3 - Minutes and Puzzles (link)		
Time (11 min)	**Section**	**What to Do:**
5 minutes	A Closer Look at Puzzles and Minutes	• Puzzles and minutes are the main metric for ST Math. This makes it easier to measure the most important factor according to all the research: time playing. • Because of the flexibility of ST Math and the requirement that each Objective must be completed before going on, each students' actual Journey through ST Math will be unique. • Allowing each student to focus on increasing or maintaining their puzzles and minutes means each student can be successful and meet their personal goals. • Take a few minutes to allow teachers to look at the data on their My Classes. Discuss how that information can be used to set goals and celebrate. • Be sure to check out how the view changes when you sort by Currently Playing.
4 minutes	How Can Students Monitor Their Progress?	• Setting and reaching clear goals (see previous module) requires some data recording. There are several options available at ST Math Help. If you didn't visit ST Math Help before, now is the time to go there and search for Data Trackers (go right there). There are several different versions for all age groups and guides to their use.

2 minutes	Should My Students Collect All the Puzzles?	• Whether or not it's a good idea to have students complete all the Objectives in their Journey depends on your students. For some, it is better to provide them with a more personalized experience and worry less about completing all the Objectives. • You can also use Assignments to make sure the content you want students to complete is moved up in their Journey.
	Quiz	

Resources
- ST Math Help Data Trackers: https://help.stmath.com/hc/en-us/articles/360050319193-Data-Trackers

Unit 2 - Supporting Students

Overview:

- The Problem Solving Process is introduced as a way to make the Perception-Action cycle actionable.
- Then how teachers should support students as they play ST Math, including good stuck and bad stuck, is discussed.
- The course concludes with a tour of the resources that are available to teachers and what can be found in each one,

Preparation:

- Before the session review (and perhaps print out) the steps and sample questions in the Problem Solving Process. You will be using it to guide teachers through an algebra game. Playing a higher grade game allows teachers to interact with it more like their students will.
- Teachers should have a computer or tablet with internet to access to the games and activities presented in the The Essentials courses.
- Decide how you're going to handle the quizzes that record completion of each module. Direct participants to go back and complete them at a later time or provide time for teachers to complete them in your session.

Module 4 - The Problem Solving Process		
Time (16 min)	**Section**	**What to Do:**

8 minutes	Let's find out what it feels like!	• Understanding and using the Problem Solving Process will make all learning more powerful. This activity allows everyone to walk through and see how the PSP is used with ST Math games.
		• You should be comfortable using the PSP as your teachers work at solving the Wall Factory puzzle.
		• Since this game is more challenging than many of the games they've played so far, teachers will have to think about how to solve it. Expect some a-has when they begin to see how ST Math models algebra for upper grade students.
		• If you would like to explore more of Wall Factory, you have two options:
		  • A collection from many different levels starting out easy and getting tough (link).
		  • Go to Wall Factory in Curriculum > All Learning Objectives and play your choice of levels in the sixth grade Modeling with Expressions Objective (link).

8 minutes	The Problem Solving Process Steps	• Discuss how the PSP helped teachers focus on what was required to solve the puzzle. • Ask teachers how they could use it to facilitate students who are good stuck as well as bad stuck. • Discuss how to encourage productive struggle in the classroom. Working to build a community of supportive learners that celebrates effort and sticking to it even when it gets tough is a powerful and worthwhile goal.
	Quiz	
Resources: • Problem Solving Process Poster (English) • Problem Solving Process Poster (Spanish) • Problem Solving Process Bookmarks • Problem Solving Process Sentence Stems		

Module 5 - How and When to Help		
Time (20 min)	**Section**	**What to Do:**
8 minutes	The Importance of Productive Struggle	• Productive Struggle is the process of effortful learning that develops grit and creative problem solving. In addition, it gives students the confidence that they are capable problem solvers -- an attitude that will help them far beyond ST Math. • The first section of this module provides resources to learn about the importance of productive struggle. Be sure teachers are aware of this resource and spend as much time on the information there as you can. • Share the video that is on that page (https://youtu.be/HAd8n5x0LxU)
5 minutes	Good Stuck vs. Bad Stuck	• While it's important not to solve puzzles for students or tell them what to do, it's important to distinguish between students who need to keep working and those who are on the verge of shutting down. We call those good stuck and bad stuck respectively. • Review the differences between the characteristics of good stuck and bad stuck. • Ask teachers to think about ways they can tell whether a student is good stuck or bad stuck (with the understanding that it can be very different for different students). • A deeper discussion on helping students who are really struggling is in a later module, Helping Struggling Students.

5 minutes	Using ST Math's On-Screen Resources to Help Students	• ST Math has several features that are important for students to notice and use. • Highlights that appear at the beginning of a puzzle and when the screen is clicked help direct students' attention. Highlighting supports the first step of the Learning Cycle, Notice. • The Go button allows students time to decide if their answer is correct. Encourage students to pause and Predict what is going to happen. • Pausing gives students time to think about what the feedback is teaching them including why they got it wrong AND why they got it right. • Recording ideas on the screen using the annotation tool can help students organize their thoughts as well as connect the puzzle to how the mathematical concept is recorded in symbols.
2 minutes	Classroom Tools That Support ST Math	• Having paper, pencil, and manipulatives can help students model their thinking. Many teachers have a math tool-kit for the class or individual folders with thinking paper, grid paper, and number line blanks. • Also share the math mats and game mats available on ST Math Help.
	Quiz	

Module 6 - Finding Resources and Support		
Time (11 min)	**Section**	**What to Do:**
5 minutes	ST Math Academy	• Display the home page of the Academy. Review each of the sections. • Be sure to check out the My Learning section at the top and the Topic section with, for younger grades, the Fluency Offline Resources which has addition fluency activities. • Also point educators to the Site Map link down in the footer of the page which shows every page on the site.

3+ minutes	ST Math Help	• help.stmath.com takes you to the ST Math Help site open to everyone.
		• There you will find a section just for printables with lots of fun resources, FAQs, and articles on the features of ST Math. If you have the time, challenge your educators to find the following:
		  • What do the icons mean when you're looking at what objectives are covered by a particular standard? (Recommended and Related) LINK
		  • How can you tell how many times a student has replayed an Individual Assignment? (Replay # shows on the student's page, Objective tab, Assignments subtab) LINK
		  • How many different Exit Tickets are there? (7) LINK
		  • On the How are you doing? cards, what feeling goes with yellow? (I am thinking) LINK
		  • What's the message on the congratulation cards that have JiJi impersonating Elvis? (You Rocked ST Math!) LINK
		• Remember that Help is not conditioned so users who don't use picture passwords, for example, can still find instructions on how to use them.

3 minutes	stmath.com, the Blog, and Social Media	• stmath.com is a great site to send interested parents and colleagues to. It introduces the program and has lots of games to try out. • If you'd like to go deeper into what's going on in ST Math and MIND Research Institute, the blogs are the place to be. Subscribing to them will make sure you have all the latest news and newest resources. • We LOVE it when our partners share ST Math stories and pictures on social media. On the bottom of every page of the Academy are links to Twitter, Facebook, LinkedIn, Pinterest, and YouTube.
	Quiz	