Guidance for Planning IM Instructional Materials in Distance Learning Environments in 2020–21

by the team at Illustrative Mathematics

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This is an early preview of guidance for distance learning IM will be rolling out over the summer of 2020.

Curricula authored and certified by Illustrative Mathematics equip teachers to facilitate *problem-based instruction*, which simply means believing all students can solve problems on their own and giving them a chance to try. Implementation of an IM curriculum by a skilled and supported teacher leads to students understanding and applying concepts, considering multiple approaches, choosing appropriate representations, and tackling unfamiliar problems with persistence and flexibility.

In order to support teachers to make these strides in a typical pre-COVID-19 classroom, IM's authoring teams relied on a set of assumptions about how instruction would be structured. Essentially, the lesson plans within IM curricula are written for a teacher and a group of students learning together in the same room. In this environment, people can easily speak to each other and see each other's written work.

These assumptions won't hold for many schools in the 2020–21 school year. Some form of distance learning will be part of many districts' planning. Distance learning is "planned learning that normally occurs in a different place from teaching, requiring special techniques of course design and instruction, communication through various technologies, and special organizational and administrative arrangements"[1]. How can the IM materials be used to achieve all those desirable outcomes when classes are not getting together in person, or only getting together for a few days a week?

[1] Michael Moore and Greg Kearsley, Distance Education: A Systems View of Online Learning, 3rd ed. (Boston, MA: Cengage Learning, 2011), 2, source https://books.google.com/books/about/Distance_Education_A_Systems_View_of_Onl.html?id=dU8KAAAAQBAJ

1. Principles for Building Distance Learning Experiences around IM Materials

IM has strong beliefs about teaching and learning mathematics that are built into all of our curricula. These include giving every student access to grade-level mathematics, engaging students and attending to their socio-emotional learning, and giving students opportunities to synthesize and consolidate their learning. In the context of needing to shift to distance or hybrid learning, we propose some additional principles to inform the design of learning experiences around IM materials.

1. **Prioritize time and find ways for *doing grade-level mathematics*.** Doing mathematics involves making and justifying claims, making sense of and solving problems that advance mathematical understanding, hearing and critiquing the reasoning of others, and revising and reflecting on your work. In addition to whatever in-person time you have, there are two main strategies here: *leveraging digital tools* and *recruiting families and caretakers* to listen to student thinking.
2. **Use synchronous time strategically.** Preserve any available in-person and synchronous time for building relationships and community, and for cognitively demanding tasks that are better with conversation. If students are only learning asynchronously, spend ample time on human connection, and look for opportunities for students to share their thinking with their teacher and peers using digital tools built for this purpose.

3. **Design for access and equity.** Attend to making materials accessible and assignments doable for every student. Maintain a high standard for the quality of work completed, while being flexible about when and how it is completed. As part of this, one might provide:
    - instructions in students' home language
    - closed captioning of video materials
    - multiple ways for students to access materials (e.g. printed materials for pick-up and drop-off)
    - special instructions for caregivers of the youngest learners, who might need to help children read written directions, as well as access or navigate digital tools and platforms.
4. **Attend to clarity in directions and anticipate potential confusion and barriers.** In a classroom, a student can get the teacher's attention when something doesn't make sense, and a teacher can more easily check to see if students understand what they're asked to do. In a remote setting, instructions need to be written more carefully so that students can more easily discern, independently, what is expected. To this end, one might:
    - organize materials and assignment schedules in a centralized and streamlined way so that students and caregivers can find everything by visiting one place (paper or online)
    - minimize the number of digital platforms required, as well as the number of tools and processes for completing and submitting work
5. **Adjust pacing expectations.** Things take longer in this format. Kids won't learn everything they usually do this year. They can still learn lots of good math. Slow down and focus on providing access to major work at grade level, using unit-level guidance for 2020–21 provided by IM in the Community Hub. Prioritize doing mathematics over covering content. Provide more time for exploration and ask deeper questions about fewer topics.
6. **Consider age-appropriateness.** Distance learning will look a lot different for kids of different ages. These may include things such as the amount of time students spend on math each day, the ways in which students submit work, and the amount and type of independent practice. In the younger grades there are additional considerations such as reducing screen time, supporting families with mathematical discussions, and differences in understanding what kids know and are able to do. Older students could learn skills for becoming more self-sufficient in their learning, such as understanding mathematical text, learning from video resources, and using learning targets to assess their progress and identify topics that need more practice.

2. Okay But What Do We Actually Do?

1. **Plan for the Year and the Unit.**
    a. Start the year with unit 1 to the extent practical [see these posts: K–5 / 6–12].
    b. Use IM's 2020–21 unit and curriculum adaptation packs in the Community Hub to prioritize essential content and plan for addressing unfinished learning.

2. **Plan for 1–2 Weeks at a Time.** Here is where we get down to nuts and bolts. Let go of the one-lesson-per-day paradigm and think in terms of how students can meet the learning goals with more time flexibility. Consider posting all of the assignments and resources students need at the start of a week, due dates for specific tasks, and scheduled times for synchronous meetings or office hours. This approach gives learners and caregivers the flexibility to manage their academic responsibilities alongside all the other demands on their time and attention.

   IM's lessons are grouped into *sections*, visible in the labels in the column on the left. In general, the curriculum provides learning experiences structured as an invitation to the mathematics, deep dive activities, and consolidation and application. For distance learning, we can think of the work students do in a *section* as three repeating stages:

1. **Explore, Play, and Discuss with Peers or Caregivers**: These activities provide opportunities for students to explore the initial ideas of the section. This part can be completed asynchronously using digital response systems or the student workbook pages with guiding questions for caregivers. These activities sometimes make use of manipulatives, either digital or analog. These activities would ideally be assigned earlier in the section. (If planning for the section to take 1 week, these activities would be assigned earlier in the week.)

2. **Deep Dive**: These activities are key learning opportunities for students around the section goals. **If there are chances for in-person or virtual synchronous time, these would be the activities to do collaboratively to share ideas with one another and build community.** If done asynchronously, opportunities to view and respond to peer work or sample student work as well as receive feedback from teachers (and perhaps peers), is essential for these activities. Formative assessment is also a part of this stage to check in on student understanding. These activities would ideally be done in the middle of the section. (If planning for the section to take 1 week, these activities would ideally be assigned mid-week in the week.)

3. **Synthesize and Apply**: These activities are ways for students to synthesize the learning of the section and for teachers to assess student understanding toward the section learning goals. These activities can be completed asynchronously, with either written, in-person, or automated

feedback. These activities would ideally be done toward the end of the section. (If planning for the section to take 1 week, these activities would be assigned later in the week.)

4. **Ongoing Practice**: These provide opportunities for students to practice unit topic ideas. In K–5, the activities in this section are typically practice problems and center games that can be played independently, with a caregiver or sibling, or with classmates. In IM 6–12, each lesson includes a distributed practice set. Many existing digital platforms already have IM 6–12 practice problems loaded in so that students can complete and submit them online.

5. **Anytime Resources:** These have the flexibility to be used any time. In K–5, these are center activities and others such as number writing, counting collections, and math stories that provide opportunities for students to build toward procedural fluency across the year. In 6–12, these are activities that offer students the opportunities to engage in mathematical modeling. In 6–8, unit culminating lessons (the last lesson in each unit) and activities from unit 9 can be used here. In 9–12, there are dedicated mathematical modeling prompts that can be used flexibly throughout the year.

3. Can You Show Us an Example?

K–5 example: Grade 2 Unit 1, Lessons 1–5

Section A Goals

- Build mathematical community
- Build toward fluency subtracting within 20.
- Build toward fluency adding within 100.

In this section, students engage in center activities that help develop mental strategies for adding and subtracting within 20. These activities give teachers opportunities to assess grade 1 fluency with facts within 10. The first several lessons focus on making a ten as a strategy to add and subtract. Making a ten helps students gain fluency with facts within 20 and supports the work with larger numbers, in which students compose and decompose numbers as a strategy to add and subtract. In the last lesson of this section, students use strategies learned in grade 1 to add within 50.

Explore, Play, and Discuss	**Activity Suggestions**
	• Lessons 1 & 2, Warm-up: What do you know about _?
	  ○ Can be combined into one activity.
	• Lessons 3 & 4, Warm-up: Number Talks
	  ○ Can be combined into one activity.
	  ○ Use these responses to launch the Deep Dive activities.
	• Lesson 1, Activity 1: Make the Number: Add or Subtract to 10
	  ○ This is a game that can be played independently or with a partner in the student workbook or digitally.
	• Lesson 2, Activity 1: What's Behind My Back: 10 Cubes and 20 cubes
	  ○ This requires connecting cubes. This could be used as a digital option if they are not available.
	• Scavenger Hunt: All About 10
	  ○ Optional, additional resource not in lesson plan
	  ○ Tell students they can capture pictures of things they found or have the collections handy for times when you meet with the whole class.
		Assessment Suggestions
		• Lesson 2, Cool-down

Deep Dive	**Activity Suggestions**
	• Lesson 4, Activity 1 and Lesson 5 Activity 1
	  ○ Can be combined into 1 activity
	  ○ Launch with the Explore activity above.
	• Lesson 5, Activity 2
	  ○ Use first half of the activity
	• Invite students to share what they found during the scavenger hunt.
	• Prepare a space, such as a piece of poster paper or digital whiteboard, titled "Math Community" and a
		Assessment Suggestions
		• Lesson 4, Cool-down

	T-chart with the header “Doing Math.” Partition the column into two sections: students and teachers. Revisit and revise these ideas during the year. ○ Ask, “What does it look and sound like to do math together?” ○ Record responses on display. You will revisit this display throughout each section so be sure to save it for future use.	

Synthesize and Apply	**Activity Suggestions** • Lesson 5, Activity 2: Adding within 50 (second half) • Student Lesson Summary ○ Ask students to read the summary, before completing the Section A Checkpoint. The teacher could also record a video of the summary to lessen the reading lift.	**Assessment Suggestions** • Section A Checkpoint

Ongoing Practice	• Practice Problems ○ Pre-unit problems - early in the week ○ Lesson problems - later in the week • Centers: ○ What’s Behind My Back: 10 Cubes and 20 cubes ■ This requires connecting cubes. This could be used as a digital option if they are not available. ○ How Close? Close to 20

Anytime Resources	• Exploration Practice Problems • Possibility for extension: Collection of 'Good, Puzzly Questions' that students can work on throughout the unit. Like in Marilyn's book and blog. • IM Talking Math ○ IM will pull the images and questions that match the content of this section so teachers do not have to dig through them all.

6–12 example: Grade 8 Unit 4 (Lessons 2–6)

Explore, Play, and Discuss	• I can add or remove blocks from a hanger and keep the hanger balanced. • I can represent balanced hangers with equations.	
	Activity Suggestions: ➢ Lesson 2: Students respond to questions in an online or paper journal, or talk them over with someone at home. ➢ Activity 3.2 Virtual Card Sort ➢ Additional Resource: SolveMe Puzzles	**Assessment Suggestions:** ➢ Check Your Readiness Assessment: Administer all 5 items within the first day or two of this section. Use the guidance provided with each problem to adjust instruction so that students can access the math in the unit.

Deep Dive	• I can add, subtract, multiply, or divide each side of an equation by the same expression to get a new equation with the same solution. • I can make sense of multiple ways to solve an equation.	
	Activity Suggestions: ➢ Activity 3.3: Synch discussion ➢ Lesson 4: Synch discussion	**Assessment Suggestions:** ➢ Lesson 3 Cool-down or Activity 5.1 ➢ Lesson 4 Cool-down

Synthesize and Apply

- I can solve an equation where the variable appears on both sides.
- I can solve linear equations in one variable.

Activity Suggestions:

- ➢ Activity 5.2: Make contents of cards available in online or paper journals for students to respond.
- ➢ Lesson 6: Students respond to questions in an online or paper journal, or talk them over with someone at home.
- ➢ Teach and encourage students to study the lesson summaries (at the end of every lesson) and refer back to them.

Assessment Suggestions:

- ➢ Lesson 6 Cool-down
- ➢ Revisions to previous assessment prompts
- ➢ Students use learning targets to decide what additional practice they need.

Ongoing Practice

- Assign one or more of the distributed practice problem sets from lessons 1–6 to be completed over the time period that the section is being worked on.
- These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit.
- Specify which problems students should submit, or let them choose.
- Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources

- Delve into one of the culminating lessons from units 1, 2, or 3.
- Use the tessellations lessons from unit 9.

4. Instructional components by function and how they translate

We know that people are working with all kinds of different tools. Moving a class online involves facilitating a number of functions and interactions as smoothly as possible, such that any technology introduced avoids taking time away from talking and learning about math. The information suggested in this table is meant to inspire ideas for establishing structures that enable problem-based learning in an online environment.

Explore, Play, and Discuss			
Function	**Face to face**	**Synchronous online**	**Asynchronous**
Students access course materials	Students use workbooks.	Students take home workbooks or printed pdfs, or access student digital pages (available in all IM Certified curricula).	Students take home workbooks or printed pdfs, or access student digital pages (available in all IM Certified curricula).
Students talk about their initial thoughts	Small physical groups formed by arranging desks, teacher circulating between groups	Breakout rooms Teacher monitors by observing progress in shared docs, visiting breakout rooms, or joining all breakout rooms with closed captioning turned on. Tool: Video meeting software	Students talk to other people at home or are offered structured opportunities to connect with classmates by available means (for example, by phone or by structuring time when some students can meet in or out of school). Students share their thinking on a discussion board or online bulletin board Tool: Learning Management System
Students use manipulatives to	Students work on tasks or assignments that	Teacher demonstrates use of virtual	Students access readily available materials at

generate examples or create concrete models	lend themselves to modeling with the manipulative. Teacher Students have anytime access to manipulatives stored in accessible bins.	manipulatives and makes them available for student use. Students work on online tasks or assignments that lend themselves to modeling with the manipulative. Students have anytime access to manipulatives through bookmarks or an organized resource link library.	home, such as paper, coins, boxes, measuring tools, string, etc. Teacher demonstrates use of virtual manipulative using a screencast, makes them available for student use. Students work on online tasks or assignments that lend themselves to modeling with the manipulative. Students have anytime access to manipulatives through bookmarks or an organized resource link library.

Deep Dive			
Function	**Face to face**	**Synchronous online**	**Asynchronous online**
Students collaborate with each other	Small physical groups formed by arranging desks, teacher circulating between groups	Breakout rooms Teacher monitors by observing progress in shared docs, visiting breakout rooms, or joining all breakout rooms with closed captioning turned on. Tool: Video meeting software	Discussion board feature Tool: Learning Management System
Students see each other's work	Students use shared whiteboards, or teacher uses a document	Accessing a shared doc, slide deck, or virtual whiteboard	Tools that allow students to post their work for others to

	camera.	Tools: Shared virtual document; Virtual whiteboard; Realtime remote response system	comment on Tools: Video/audio recording and sharing tools; Shared virtual document; Learning Management System;
Teacher monitors as students work	Students write on paper or whiteboard.	Realtime remote response system; Virtual whiteboard	Students sharing drafts or think-aloud videos. Tools: Shared virtual document; Learning Management System; Video/audio recording and sharing tools
Students respond to teacher questions	Students raise hands, teacher "cold calls" on students, or students add sticky notes to chart paper	Students type response in meeting room chat and pause until teacher tells them to press enter. Students use "raise hand" feature or teacher calls on students to unmute and share their thinking Tool: Video meeting software	Post and respond on threaded discussion board Tools: Shared virtual document; Learning Management System; Video/audio recording and sharing tools

Consolidate and Apply			
Function	**Face to face**	**Synchronous online**	**Asynchronous online**
Teacher demonstrates a concept, procedure, or vocabulary	Whiteboard or chalkboard	Online meeting with shared whiteboard; Screen share of presentation software with student remote response capability	Teacher records and posts short screencast videos, or makes available videos created by third parties Tools: Screencasting

			software; Learning Management Systems for sharing
Students respond to formative assessment prompts	Students raise hands or turn in a written response	Students type response in meeting room chat and pause until teacher tells them to press enter. Students unmute and share their thinking. Tool: Video meeting software	Post and respond on threaded discussion board Submit a response in a shared document or form, or record their thinking on a virtual whiteboard Tools: Shared virtual document; Learning Management System; Video/audio recording and sharing tools; Desmos Activity Builder
Teacher responds based on student responses to formative assessment questions	Teacher gives written feedback or addresses a common misconception during class time.	Teacher addresses a common misconception during class time Tool: Video meeting software	Teacher gives written feedback to individual students Teacher records a video addressing a common misconception. Teacher shares an error analysis prompt for students to respond to. Tools: Shared virtual document; Learning Management System; Video/audio recording and sharing tools; Desmos Activity Builder feedback feature
Teacher checks in with students	Short impromptu face to face chats	Reserve first 5-10 minutes of meetings for lighthearted check-in questions (careful to	Phone calls home to talk to students individually.

		avoid questions that are invasive or spotlight inequities) Scheduled office hours on video meeting software.	Schedule and auto-send quick check-in note to a subset of students each day. Tools: Scheduled emails or reminder services.
Studying using learning targets and student lesson summaries	Teacher leads a close-read of student lesson summaries.		

5. Example of Planning for Remote Learning using the Section Planning Guide (grade 5)

- Page 1 is an example of teacher planning
- Page 2 is an example for family communication

6. Example of Synchronous and Asynchronous Discussions Done Remotely (grade 8)

Distance learning usually employs learning management systems (LMS), online learning environments (OLE), or other asynchronous discussion platforms combined with synchronous video conferencing. The underlying purpose for any of these tools is to facilitate students' interactions with classroom materials, their peers, and their teachers.[2]

Using activity 8.4.3.3 from the "deep dive" part of the section plan above, let's see how two different classrooms might take a deep dive into this problem during distance learning. Ms. Jones has a synchronous class period using video conferencing and Mr. Ramirez's class is completely asynchronous.

Vignette 1: Ms. Jones Hosts a Synchronous Discussion

Through her LMS, Ms. Jones assigns students to respond to problem 1. Her synchronous class period is on Wednesday morning, so she has students submit their work by noon on Tuesday. Her students are in the habit of posting to a discussion forum in their LMS, and some students take pictures of their work and record audio on their phone, while others are more comfortable typing out their ideas, especially for prompts requiring explanation.

Problem 1

1. Noah and Lin both solved the equation $14a = 2(a - 3)$.

Do you agree with either of them? Why?

Noah's solution:

$$14a = 2(a - 3)$$
$$14a = 2a - 6$$
$$12a = -6$$
$$a = -\frac{1}{2}$$

Lin's solution:

$$14a = 2(a - 3)$$
$$7a = a - 3$$
$$6a = -3$$
$$a = -\frac{1}{2}$$

[2] Ishmael, K., Heiser R., and Payne, J. "Pandemic Planning for Distance Learning: Scenarios and Considerations for PreK–12 Education Leaders." Retrieved from: https://www.newamerica.org/education-policy/reports/pandemic-planning-for-distance-learning-scenarios-and-considerations-for-prek12-education-leaders/introduction/

Ms. Jones reads through students' discussion posts and selects Lexi and Tarek to share their thinking on the call. Ms. Jones starts the call by presenting problem 1 again, showing Lexi and Tarek's responses, and then poses a question from the activity synthesis and invites students to respond verbally. She makes use of the raise-hand feature on the platform, so that students who don't have a webcam can still volunteer to be called on.

Then Ms. Jones transitions to working on problems 2 and 3, which students have not seen before. She wants students to reason together and collaborate, and so she plans to make use of breakout groups. Ms. Jones uses the screen sharing capabilities of her video conferencing platform to display problems 2 and 3.

Problems 2 and 3

2. Elena is asked to solve $15 - 10x = 5(x + 9)$. What do you recommend she does to each side first?

3. Diego is asked to solve $3x - 8 = 4(x + 5)$. What do you recommend he does to each side first?

She gives students one minute of quiet think time to consider their recommendation and reason for what Elena and Diego should do first. Then, she gives students instructions for going into breakout sessions. She pastes written instructions in the chat and makes sure students all have access to the collaborative document with a copy of the questions and a space for their group to record their thinking.

In the chat, Ms. Jones pastes "You will go to breakout rooms for 5 minutes, and each member of the group should share what you think Elena should do first and why. Then, each group member should share what you think Diego should do first and why. The problem and the space to record your thinking are here: [link to the place students find their assignments for the week]."

Ms. Jones' platform allows her to join and monitor each breakout group via closed captioning (she's using Google Hangouts), but before she learned about that she used to randomly pop in on groups to be sure they were on task. She also monitors the shared docs where groups are recording their responses to see which groups are actively on task and which may need support.

After 5 minutes, Ms. Jones ends the breakout groups and instructs students to read at least one other group's response and leave a comment indicating if they agree or disagree, and why. Finally, she asks students to respond to additional questions from the activity synthesis, calling on students who raise their hands in the platform, as well as asking a few students whose groups made interesting points in the shared doc to add their ideas.

Tips from Ms. Jones:

- Provide students with some of the more accessible prompts beforehand so that synchronous time can focus on discussion and looking at student work. Have students turn in their work using tools they're used to.
- Preview the responses ahead of time and select one or more responses to share on the call.
- Pose one or more of the questions from the activity synthesis and invite students to respond verbally. Make use of the raise-hand feature on the platform, or a simple raised hand if students have their cameras on.
- For problems students will collaborate on synchronously, use the screen sharing or presentation capabilities of your video conferencing platform to display the problems 2 and 3. Give students quiet think time *before* giving instructions for breakout rooms.
- Give verbal discussions for the breakout rooms AND paste the instructions into the chat or a shared document that students access during class time. Include any needed links for students to see the problems and find a shared place to record their thinking that has been set up ahead of time. (Ms. Jones has this all linked from a central place where students find their assignments for the week.)
- In the directions, include instructions for who will report back and how. The group could designate a spokesperson who will raise their hand on return, or type a response to a prompt in the chat, or post their response in the shared collaborative doc.
- If possible, as the teacher, join each breakout room yourself and turn on closed captioning. That way, you can monitor what is happening in all of the breakout rooms. If that is not possible, pop into each breakout room at least once to eavesdrop on the conversation. Monitor the shared docs where groups are recording their responses.
- When you bring students back from the breakout rooms, have the designated group members share in the designated location, lead a discussion about the work, and once again use any of the prompts in the activity synthesis.

Vignette 2: Mr. Ramirez Hosts an Asynchronous Discussion

Mr. Ramirez's district does not require students to attend synchronous classes, recognizing that not all students have access to their family's computer and wi-fi at set times during the day. Mr. Ramirez sometimes is able to have meetings with small groups of students synchronously, but core instruction has to be asynchronous. In addition, Mr. Ramirez knows that some students don't have wi-fi access, and so he provides a paper option and coordinates turn-in at the lunch pick up and drop off. He is committed to finding ways for students to explore, take a deep dive and share and consider each other's thinking, and to give students feedback, asynchronously.

Mr. Ramirez creates weekly assignments and indicates which prompts students will collaborate on, and which they will do with family, on their own, or turn in just to him. He has selected these problems from 8.4.3.3 as part of the collaborative focus for this week.

On Monday, Mr. Ramirez posts the assignment for the week, and he asks students to share a rough draft of their thinking on Problem 1 by Tuesday. For students without wi-fi access, Mr. Ramirez has them text him a picture of their work on the paper packet, or turn in their work in a folder when they pick up their lunches. He checks the folder every Wednesday and Friday.

Problem 1

1. Noah and Lin both solved the equation $14a = 2(a - 3)$.

Do you agree with either of them? Why?

Noah's solution:

$$14a = 2(a - 3)$$
$$14a = 2a - 6$$
$$12a = -6$$
$$a = -\frac{1}{2}$$

Lin's solution:

$$14a = 2(a - 3)$$
$$7a = a - 3$$
$$6a = -3$$
$$a = -\frac{1}{2}$$

Mr. Ramirez reads through the student work and selects 2 students' work for everyone to view and discuss. On Wednesday afternoon, he posts Zaire's and Sam's solutions as an assignment in the class's learning management system, along with prompts for students to respond to. The prompts are questions from the activity synthesis.

For students without reliable wi-fi, Mr. Ramirez uses the Remind app to send out a text message to students and families with an image of the student work and prompts.

Mr. Ramirez would like as many students as possible to have some experience of collaborating and sharing their thinking on Problems 2 and 3. In the packet of work he assigns on Monday, he has randomly grouped students into groups of 3-6.

Problems 2 and 3

2. Elena is asked to solve $15 - 10x = 5(x + 9)$. What do you recommend she does to each side first?

3. Diego is asked to solve $3x - 8 = 4(x + 5)$. What do you recommend he does to each side first?

Students with wi-fi are grouped in a platform that allows them to record and share a short video with the assignment to upload a video of what Diego and Elena should do first and why. Then students are assigned to comment on each video in their small group.

Mr. Ramirez watches some of the videos and monitors the comments to make sure that students understand the question and are having productive discussions. He shares sentence starters with the assignments, such as, "I liked how you… I wonder about…" or "Can you explain more about…" to help students comment productively.

For students without wi-fi, Mr. Ramirez calls groups of students during the week (using the merge calls feature on his phone) to ask them to share their thinking about what Elena and Diego should do first, and he helps facilitate a phone conversation. Sometimes Mr. Ramirez calls students individually instead.

The weekly assignment includes synthesizing questions that students submit on their own, as well as additional practice and exploratory problems. Students either turn in the packets on Friday lunch pick-up or through the LMS. Mr. Ramirez includes feedback and opportunities for students to revise their work on Problems 1, 2, and 3 as part of the following week's assignments.

Tips from Mr. Ramirez:

- Use your LMS or work packets to assign students problems to work on, including problems that are designated for collaboration.
- Have clear deadlines for turning in work throughout the week, depending on if the work is to be collaborated on during the week.
- Share student work samples back to students to reflect on and respond to mid-week.
- For more collaborative prompts, assign students to a discussion or micro-vlogging forum or group that only contains 3–6 students. They should be instructed to share their responses to problems in the small-group forum. Each group member should share initially, and students should be assigned the task of commenting on each group member's thinking. Sentence starters for commenting can help students respond appropriately.
- As the teacher, monitor what is happening in each of the small-group spaces.
- Create a synthesizing post that encapsulates responses to the questions posed in the activity synthesis. This could either consist of you as the teacher summarizing ideas in a video, or you could assemble different student responses into a post or a screencast.
- Give students time to revisit and revise their thinking, either throughout the week or as part of the following week's assignment.
- Consider when to provide individual feedback and when to share a summarizing post, error analysis, etc. with the whole group or a small group.
- Include both collaborative and independent work during the week, and provide options for students with less access to wi-fi and computers ways to participate in conversations. Take advantage of phone calls, texting, and physical locations for students to pick up and turn in work.