Routine Facilitation Guides

These are instructional routines and math language routines in Amplify Desmos Math. This list is not exhaustive and many of these routines are built on foundations created by other educators. We are grateful for their work and cite it where appropriate.

K-12 Routines

Instructional Routines	Math Language Routines
Number Talk	MLR1: Stronger and Clearer Each Time
Tell a Story	MLR2: Collect and Display
Notice and Wonder	MLR3: Critique, Correct, Clarify
Which One Doesn't Belong	MLR5: Co-Craft Questions
Decide and Defend	MLR6: Three Reads
Think-Pair-Share	MLR7: Compare and Connect

Additional K-5 Routines

Instructional Routines	Math Language Routines
Choral Count	MLR 4: Information Gap
Estimation Exploration	MLR 8: Discussion Supports
Gallery Tour	
How Many Do You See?	
Mix and Mingle	
Stories and Questions	
True or False?	
What Do You Know About ___	

Number Talk

This routine encourages students to look for and make use of structure in expressions to calculate their values (MP7). It is adapted from work by Ruth Parker and Cathy Humphreys.

Facilitation

1. Display the first expression or pattern from a list.
2. Give students one minute to think quietly and then signal when they have an answer and a strategy. Encourage students to think of more than one strategy.

   If students are struggling, consider sharing a strategy of your own or one of the possible strategies in the sample responses.
3. Select several students to share different strategies. Use the sample responses as examples of possible student strategies. Record strategies for all to see, along with the name of the student who shared each one.
4. Display the next expression and repeat. If it makes sense, encourage students to use a strategy described by a classmate in the previous round.
5. After students work on the second expression, consider asking students whether or not they have adopted a strategy shared by a student in a previous expression. That citation can support the development of a student's sense of mathematical identity and agency.

Notes

- It is often helpful to keep previous expressions displayed as you move to the next problem so students can refer back to previous strategies.
- It can be helpful to anticipate strategies students might use, including ones that will be more or less helpful for students to use later in the number talk or the lesson.

Tell a Story

This routine invites students to use their knowledge and creativity to make sense of an image, table, graph, etc. by telling a story about it. “The narrative format [of stories] lets the brain take big ideas, abstract concepts, and dry facts and transform them into something we can more easily remember.” (Hammond, 2015)

Facilitation

1. Invite students to bring their unique experiences, perspectives, identities and creativity to write a story based on the graph, table, image, video, etc.
2. Give students a few minutes to think quietly and write their story or jot down ideas. Consider reminding students that these stories do not need to be perfect to be valuable.
3. Give students one minute to share their story with a partner or small group. Encourage students to ask questions and talk about each other’s stories.
4. Monitor for stories that are unique or joyful, or that represent the situation with a different perspective. Invite these students to share their stories, or use the snapshot tool to share them with the class. Consider asking: *How do you see the parts of ________’s story in the table/graph/image?*

Notes

- Storytelling is an important part of many cultures and “verbal expressiveness is a central cultural theme in oral cultural traditions.” (Cazden, 2001; Ladson-Billings, 2009).
- There are specific screens in the curriculum titled “Tell a Story.” But this routine can be used anytime there is an opportunity for students to make sense of a new mathematical object in a context.
- Depending on time, it is possible to shorten the routine by giving one minute of individual think time and then inviting students to share out.

Notice and Wonder

This routine helps students make sense of a math representation or context (MP1) before they investigate it more deeply. This routine often appears as a warm-up or in the launch of an activity.

Facilitation

1. Display a mathematical representation, image, or other media along with the prompt: *What do you notice? What do you wonder?*

   Tip: Some teachers use a graphic organizer or T-chart for students to organize their noticings and wonderings.

2. Give students a few minutes to think quietly and record what they notice and wonder.
3. Give students one minute to share their thinking with a partner.
4. Ask several students to share with the class something their partner noticed or wondered. Consider recording those along with the names of students.

   Math community: Celebrate variety and creativity in what students notice and wonder, including things that surprise you or that you think other students may not have noticed.

5. If applicable, return to students' noticings and wonderings throughout the lesson as they become relevant.

Notes

- Notice and wonder can be used anytime it would be helpful for students to pause and make sense before they calculate or respond.
- Depending on time, it is possible to shorten the routine by giving one minute of individual think time and then inviting students to share out.

Which One Doesn’t Belong?

This routine supports students in looking for and making use of structure (MP7). Students use their existing ideas and language to decide which of four mathematical objects is different from the others. All sets of objects are designed so that each of the objects “doesn’t belong” in some way, which helps students focus on their reasoning and communication rather than their answer. This routine is adapted from the work of Christopher Danielson, Megan Franke, and Sesame Street (among others).

Facilitation

1. Present students with four figures, diagrams, graphs, or expressions with the prompt: *Which one doesn’t belong?*
2. Give students one minute of time to think quietly. Ask them to indicate when they have noticed one letter that does not belong and can explain why. Encourage them to look for more than one possibility.
3. When the minute is up, give students two minutes to share their responses with their partner and work together to find at least one reason *each* representation doesn't belong.
4. Invite students to describe the ways each choice is different from the rest (e.g., The top left is the only one that _____).

   Consider asking a student to share *why* they chose an object, but not *which* object they chose, and then ask the class to decide which object the student chose.

Decide and Defend

This routine is intended to support students in strengthening their ability to make arguments and to critique the reasoning of others (MP3). In this routine, students make sense of someone else's line of mathematical reasoning, decide if they agree with that reasoning, and then draft an argument defending their decision. This includes situations where students are making sense of two students' different ideas about a situation (Settle a Dispute). This routine is adapted from Fostering Math Practices.

Facilitation

1. Give students one minute to make sense of the problem or of each student's claim.

   Consider asking questions like:
   - *What question are we/they trying to answer?*
   - *What did they do? What did they find?*

2. Invite students to decide what they think and why, then to compare their solution and reasoning with a partner.

3. Display the distribution of responses using the dashboard's teacher view or poll the class, calling attention to any conflict or consensus you see.

4. Discuss each possible response. Invite students to share their reasoning.

Notes

- It may be helpful to invite students to think about who they are trying to convince with their argument (themselves, someone who agrees with them already, a skeptic, etc.)

- It may be helpful to reflect on what kind of evidence or language students found most convincing in their classmate's reasoning.

Think-Pair-Share

This routine (or collection of routines) are designed to support student-to-student discourse. There are many different ways for pairs to share their ideas with one another. The routine Stand and Talk was adapted from Sara VanDerWerf.

Facilitation

There are many different ways to facilitate pair discussion. Each routine includes some individual think time, then an opportunity to share with a partner. Here are descriptions of two discussion routines:

Think-Pair-Share

1. Give students a prompt and 30 seconds to one minute to think individually.
2. Invite students to turn to a neighbor and share their ideas, asking clarifying questions as needed.
3. Invite several pairs to share their thoughts with the whole class. It is sometimes helpful to invite students to share what their pair said rather than what they said during the conversation.

Stand and Talk

1. Invite all students to stand up. Share a prompt and give them 30 seconds to one minute to think individually. This prompt should not require students to have pencils, paper, notebooks, or calculators.
2. Invite students to walk across the room to find a partner and share their thinking.

   As students are sharing, it may be helpful to narrate actions that pairs are taking that are helpful to their conversation, such as both looking at the prompt together or asking clarifying questions.
3. Invite several students to share their ideas with the whole class.

Notes

- This routine can be used in any lesson at any moment when it would benefit students to bounce their ideas off one another or to practice articulating their thinking.
- Teachers sometimes structure pair discussions more or less based on the culture of their classes. For example, they might assign each person in a pair the letter A or B, then say which partner should share their idea first or give specific time for each partner to share.

MLR1: Stronger and Clearer Each Time

This routine is intended to help students develop their ideas and language. It is a structured opportunity for students to refine both their ideas and their verbal or written expression of those ideas. This routine is adapted from Jeff Zwiers and his colleagues (2017).

Facilitation

1. Give students 2–3 minutes of time to think quietly and to write or draw a first draft. It is not necessary that students finish this draft before moving to the next step.

2. Invite students to share their response with a partner. Partners should take turns sharing their response and giving feedback.

   It may be helpful to provide pairs with prompts for feedback that will help their partner strengthen their ideas and clarify their use of language. For example:
   - *What do you mean when you say______?*
   - *Can you describe that another way?*
   - *How do you know that _______?*
   - *Could you justify that differently?*

   Repeat Step 2 several times until each student has met with 2–3 different partners.

3. Invite students to write a second draft, borrowing language and ideas from their partner discussions. This second draft should be stronger (with more or better evidence) and clearer (more precision, organization, etc.) than the first.

4. If time allows, consider asking students to compare their first and second drafts.

Notes

- This routine in full can take 15 minutes of class time. It is possible to use abbreviated versions with fewer structured pair meetings.

- This routine is particularly useful when students are making sense of or describing a key idea in a lesson, such as during a key discussion screen 🔑 or lesson synthesis.

MLR2: Collect and Display

This routine is intended to gather the language students use to describe new terms and strategies so that they can refer to and build on them during future discussions. Students' own words become the reference for developing new math language and ideas. Many teachers use students' language to create a class definition of a new term or to build anchor charts for new concepts. This routine is adapted from Jeff Zwiers and his colleagues (2017).

Facilitation

1. Circulate and listen to student talk, particularly in moments when students are describing a new strategy or making sense of a new mathematical term. Jot down the words, phrases, drawings, or writing that students use as they work and discuss.
2. Add the language that students used to a visual display for the whole class to use as a reference during further discussions throughout the lesson and unit.
3. If time allows, invite students to create a class definition or description from the gathered student language.
4. Over time, encourage students to add revisions, updates, and connections to the display. Consider reminding students to borrow language from the display as needed.

Notes

- You and your class can start or revise these displays throughout an activity, lesson, unit, or entire course.

MLR3: Critique, Correct, Clarify

This routine is intended to help students communicate conceptual errors and ambiguities in language, as well as to model the process they might go through as they refine their own work. Students do more than just error analysis; they consider both the author's mathematical thinking as well as how they communicate their ideas. This routine is adapted from Jeff Zwiers and his colleagues (2017).

Facilitation

1. Share a response that contains early thinking, which can be either an incorrect math idea or vague language. In the case of "Help a Friend" screens, this early thinking is shown. If not shown, use a student response in anonymize mode, or create a response.
2. Share with students either that some parts of the response are correct and that some are incorrect, or that the response is correct and could be refined or improved.
3. Give pairs 2–3 minutes to read the response and 1) decide what is *correct* about this student's response, 2) decide what they think is *incorrect or unclear*, and 3) *write advice or ask a question* to help the student see their mistake or why their work is unclear.
4. Invite several pairs to share what they discussed, with equal time spent on what the student did well and what they might improve.
5. Give pairs another two minutes to *correct* and *clarify* the response, either by correcting the errors or by making the language less ambiguous or vague.
6. If time allows, create one revised response as a class.

Notes

- It may be helpful to demonstrate how to effectively and respectfully critique the work of others by thinking aloud as a class about a teacher's incorrect work.
- Consider sharing diverse pieces of advice that students wrote, or discussing how students help each other and give advice in their families and communities.
- There are some screens that explicitly invite students to analyze incorrect work or improve imprecise language. However, this routine is useful anytime students have common errors or imprecisions in language, or there is a particularly interesting piece of incorrect work to discuss.

MLR5: Co-Craft Questions

This routine supports students in making sense of a context without pressure to produce answers. It is also intended for students to practice producing the language used in mathematical question asking. This routine is adapted from Jeff Zwiers and his colleagues (2017).

Facilitation

1. Display a picture, video, context, or other mathematical hook. This can also be different mathematical representations (tables, graphs, etc.) that may or may not include values.
2. Encourage students to brainstorm or write possible mathematical questions that might be asked about the situation. These should include questions that they think are answerable by doing math. They can also be questions about the situation, information that might be missing, and even about assumptions that they think are important.
3. Invite students to compare their questions with a partner.
4. Invite students to share their questions with the class. Celebrate the variety and creativity of questions and discuss which ones might be answerable using the math they know so far.
5. Reveal the specific question or questions that students will explore for the rest of the activity.

Notes

- **Movement Option:** Consider using the Stand and Talk routine (part of Think-Pair-Share) while students are generating and discussing their questions.
- This routine is an opportunity to discuss what might make a question answerable by doing math. Consider inviting students to share a question about the situation that they think is answerable by doing math and a question that they think is not answerable by math to help distinguish between the two categories.
- After generating questions, students often all answer the same question (either pre-defined in the activity or from the generated list). As a stretch, invite students to choose and answer a different question from the list.
- This routine can also apply when students are creating their own situations given a mathematical representation (graph, equation, function, table, etc.) or creating their own problems given a task.

MLR6: Three Reads

This routine is intended to support making sense of language and reading comprehension. Students read a mathematical text three times, each with a particular focus. The question or prompt is only revealed in the third read so that students can concentrate on making sense of what is happening in the text before rushing to a solution or method. This routine is adapted from Jeff Zwiers and his colleagues (2017).

Facilitation

READ #1: Students read the problem to get a big picture understanding.

1. Invite a student to read the problem aloud while everyone else reads along.
2. Ask students: *What is this situation about?* Allow one minute for students to discuss with a partner. Then invite them to share with the whole class.

READ #2: Students hone in on details and name quantities.

3. Invite students to read the situation aloud with their partner.
4. Ask students: *What can be counted or measured in this situation? How are they related?* (E.g., number of people in her family or number of markers after).

   Give students one minute of quiet think time and another to share with their partner.

5. Facilitate a whole-class discussion about the relationships between the quantities. Record quantities and their relationships for students to reference later.

READ #3: Students brainstorm possible strategies for solving the problem.

6. Reveal the final question or prompt. Invite students to think of ways to approach the question. Consider asking: *How would you approach this question? What strategy would you try first?*
7. Invite 1–2 students to share their ideas with the whole class.

Notes

- Some of the quantities will be explicit (e.g., apples), while others will be implicit (e.g., the time it takes to brush one tooth).
- If time does not allow, invite pairs to do a modified version of this routine on their own in order to make sense of a text before solving the problem.

MLR7: Compare and Connect

In this routine, students make sense of multiple mathematical strategies for solving the same problem. This can include comparing two fictional students' strategies, comparing a fictional student's work to their own, and comparing classmates' work to each other or to their own. This routine is adapted from Jeff Zwiers and his colleagues (2017).

Facilitation

1. Give students a problem that can be approached and solved using multiple strategies.
2. After students have their own solution, share two or more solutions, including but not limited to solutions created by students in the class or by fictional students.
3. Invite students to investigate each solution individually and then with a partner. It may be helpful to provide students with sentence frames like:
   - First, they ______. Next, they _____. Finally, ________.
   - Their strategy was ________.
   - What is clear to me is ________. What I do not understand is _______.
4. Facilitate a whole-class discussion to compare, contrast, and connect different approaches and representations.

   Consider asking questions like:
   - *Why did the different approaches lead to the same outcome?*
   - *What worked well in _______'s approach/representation? What could be improved?*
   - *Where do you see [key concept] in each approach?*

Notes

- Consider asking students why or when different strategies or language might be used.
- During the discussion, consider asking open-ended questions rather than questions to test their understanding of each strategy.

Choral Count

This routine provides students with an opportunity to practice counting as a class. As students count aloud, the count sequence is displayed so that students can notice patterns or structures across numbers. (MP7)

Facilitation

1. Invite students to count together by saying: *Let's count by __, starting at __ and ending at __.*
2. Display or record each number as students count. Align the numerals to highlight the pattern you wish for students to notice.
3. To highlight patterns in the count, ask questions such as "What do you notice?" or "What patterns do you see?" Record a variety of students' responses.
4. Encourage students to apply their understanding by repeating the count, predicting the next number in the count, or connecting the count sequence with the lesson goals.

Notes

- **Movement Option:** As students count, have students jump, stomp, or fist pump with each number or group of numbers. As they become familiar with the routine, invite students to suggest other safe movements that could support their count.
- When students are repeating their count, invite them to vary their volume or tone to promote student engagement. Students could whisper, cheer, or use a robot voice as they repeat the count sequence.

Examples:

K.6.11 Organizing Jerseys, 2.4.07 Jump Around, 3.6.12 Chicken Time

Estimation Exploration

This routine strengthens students' ability to make reasonable estimates for amounts, lengths, or sizes. Over time, this routine promotes a shift from random guessing to using prior knowledge and problem-solving techniques as students make and revise estimates. (MP2)

Facilitation

1. Display an image and, if needed, provide contextual information about the image.
2. Invite students to share their estimates and strategies. Record a variety of responses.
3. Continue the discussion to help students revise their estimates by either:
    - Providing students with additional contextual information.
    - Providing a second image with additional information.
    - Asking: *Do you think the actual amount is higher or lower than your estimate? Why?*

Notes

- **Math Identity and Community:** If the image requires contextual background knowledge, consider having students share when they have encountered something similar outside of the classroom.
- **Movement Option:** Consider having students order themselves as if on a number line in order to visualize the range of student responses.
- **Language Support:** Invite students to discuss their strategy with a partner before sharing with the class.
- As an additional scaffold toward making appropriate estimates, consider asking students to first start with an estimate that they know is too high or too low.

Examples: 2.4.05 In Full Bloom, 3.2.07 Toying with Tiles, 5.1.04 Stacking Garbage

Gallery Tour

This routine gives students the opportunity to share their work directly with peers and examine their classmates' work. Students place their work around the room and circulate, independently or with partners, to examine and discuss each display.

Facilitation

1. Prepare for the Gallery Tour by inviting students to display their work for others to observe.
2. Establish the purpose or goal of the Gallery Tour. Consider assigning students a place to start their tour.
3. Give students time to circulate around the room, independently or with partners, to examine their classmates' work. Invite them to discuss or record their observations.
4. After students have circulated, bring the class back together and invite students to share about the work they saw in connection with the purpose or goal of the Gallery Tour.

Notes

- **Math Identity and Community:** Invite students to share what others did well or share connections between their work and the work of others. Then tie the observations back to the original purpose or goal of the Gallery Tour.
- **Time Crunch:** Invite students to visit 2–3 displays if time does not allow them to examine every display.
- **Language Support:** Display sentence frames to support students' discourse and to support students in focusing on the purpose or goal of the Gallery Tour.
- If students need to verbally explain their work, divide the class into 2 groups. Invite 1 group to stand by their work and explain as the other group circulates. Then switch so that all students have the opportunity to share.

Examples:

1.2.18 Which Problem?, 3.6.17 For Good Measure, 5.5.24 Watch and Learn

How Many Do You See?

This routine supports students' development of counting strategies, subitizing, and utilizing visual and mathematical structures. (MP7)

Facilitation

1. Display an image for 2–5 seconds. Have students signal when they are ready with an answer.
2. Display the image for discussion. Ask students: *How many do you see? How did you see them?*
3. Invite several students to share their responses and record a variety of responses. Consider asking:
    - *What is another way to see them?*
    - *What if there was an additional group?*
    - *Could you write an expression that represents your strategy?*
4. If working through a series of images, display the next image and repeat the steps.

Notes

- **Math Identity and Community:** Consider recording students' names along with their responses. Draw connections between students' responses and encourage students to visualize an image through another student's lens.
- **Movement Option:** Consider using an action-based signal for students to indicate their readiness, such as stand up, sit down, or move to a certain part of the classroom.
- **Language Support:** Encourage students to use hand motions or a sketch to help describe how they visualized the amount.
- Consider anticipating what strategies could be the most helpful as students progress through the number talk or rest of the lesson.

Examples: K.4.07 The Bus Depot, 3.1.14 Which Character Are You?

Mix and Mingle

This routine offers an active way for students to share their questions, responses, or thinking.

Facilitation

1. Establish the goal or purpose of the discussions students will have with each other. Display a prompt or distribute materials to each student. Materials could be cards with information or physical manipulatives.

2. Have students circulate and pair up with a peer. Then have them discuss the prompt or what is on their cards.

3. Signal to students when the round has ended and have them trade materials, if applicable, with their current partner and find a new partner for the next round.

4. Repeat Step 3 for each new round that time permits.

Notes

- This routine is used outside of Amplify Desmos Math to get students up and talking to different students based on a common purpose or question, not necessarily needing cards or manipulatives. Consider applying any non-math Mix and Mingle classroom routines that students are familiar with.
- **Time Crunch:** Plan who will be paired together for the first round. Then have students mix for the next round.
- **Time Crunch:** Consider having students mix for only 2 rounds.
- Model how you want students to move around the room when circulating to pair up with a peer.
- Consider using a cue, such as music or chanting, to tell students when to stop circulating and pair up.
- When using cards, if it works for the content, consider:
    - Photocopying different sets of cards on different-colored paper to make it easier for partners to find each other.
        - For example, consider saying: *If you have a blue card, find a partner with a red card.*
    - Using existing partner configurations for an easy distribution of cards.
        - For example, if students are usually split up for partner opportunities as “apples” and “oranges,” say: *Apples, find an orange.*
- **Movement Option:** Have one partner stay in place and the other mingle. After the first round, have the partner who stayed in place mingle to their next partner.

Examples: K.4.02 How Many Objects?, 1.4.15 Greater Than, Less Than, 2.5.07 What’s Your Name?

Stories and Questions

This routine invites students to consider a math story to analyze the relationship between quantities (MP2) and consider how they can use mathematics to model a real-world situation (MP4).

Facilitation

1. Display a mathematical story, image, or other media. Give students a moment to think about the display.
2. Ask one or more of the following questions to support students in making sense of the context:
    - *What do you notice?*
    - *What math story could you tell about ___?*
    - *What math questions could you ask about this story?*

   Have students think independently for a moment and then invite them to share their thinking. Before students share with the class, consider inviting them to share with a partner. Use drawings, numbers, or words to record students' thinking.
3. Use a synthesizing question or statement to connect the discussion to the upcoming activities.

Notes

- **Math Identity and Community:** Invite students to share connections with other students' responses by displaying a silent signal. Have students use the signal to indicate agreement and connection while maintaining the pace of the lesson.
- **Time Crunch:** Invite students to share directly with the class, instead of sharing with a partner first, if time does not allow for both.
- **Movement Option:** After asking how students could show a story, invite them to act it out using a group of students or objects.

Examples:

K.2.17 Cooking Tools, K.4.12 One Story, Two Drawings

True or False?

This routine encourages students to notice and make use of structure as they use the properties of operations to determine equivalence without having to calculate. Students use what they know about place value, operations, and number relationships to justify and explain their thinking. (MP3, MP7)

Facilitation

1. Display an equation/statement. Ask students: *Is this equation/statement true or false?* Encourage students to reason about the equation/statement without calculating.
2. Give students time to think independently and encourage them to look for more than one way to reason if the equation/statement is true or false.
3. Encourage students to share their responses and thinking with their partner.
4. Invite students to share their thinking with the whole class.
5. If you are working through a series of problems, display the next one and repeat the steps. Consider keeping previous equations/statements displayed and encourage students to use their classmates' ways to reason.

Notes

- **Language Support:** Ensure that all students understand the word *true* means correct and the word *false* means not correct.
- **Language Support:** Consider providing the sentence frame ____ *is true/false because . . .* when students are sharing with their partner or the whole class.
- **Time Crunch:** Consider only having students share with the whole class.
- Consider having students write their responses on a whiteboard or have a visual cue for true and false.
- For false equations/statements, ask students how they could make them true.

Examples: 1.1.14 What Can We Say About the Data?, 4.2.15 All in Order, 5.4.16 Pushing for Precision

What Do You Know About ___?

This routine invites students to engage in discussion and share their background knowledge about a given topic.

Facilitation

1. Display the question and any related images or media. Ask students: *What do you know about ___?*

2. Give students time to think independently and then invite them to respond.

3. Use drawings, numbers, or words to record students' thinking. Keep this on display throughout the lesson.

Notes

- Invite students to inconspicuously signal with their fingers in front of their chest how many ideas they have about the given topic. Encourage students who have fewer ideas to share first.
- **Math Identity and Community:** Invite students to make connections between mathematical concepts and their own lives by asking follow up questions such as: *Where have you seen . . .?*
- **Math Identity and Community:** Create and continually review class norms about how students react and respond to ideas that are different from their own to ensure that students feel safe and supported as they share.

Examples:
K.4.18 What Is the Value?, 2.3.02 Which Tool Will You Use?, 4.5.16 How Much Time Does It Take?

MLR4: Information Gap

This routine creates a need for students to communicate and allows teachers to facilitate meaningful interactions by giving partners or team members different pieces of necessary information that must be used together to solve a problem. (MP2, MP4)

Facilitation (Pairs)

1. Arrange students in pairs and assign each student as Partner A or Partner B.
2. Give Partner A the problem card and Partner B the information card. Each reads silently.
3. Without showing their card to their partner, invite pairs to solve the problem together.
    - Partner A thinks about what information is needed.
    - Partner B asks: *What specific information do you need?*
      Partner A requests specific information from Partner B.
    - Partner B asks: *Why do you need that information?*
      Partner A explains how they will use the information to solve the problem.

Facilitation (Small Groups)

1. Arrange students in small groups and place the stack of clue cards facedown. Ensure students understand the problem they will be answering together.
2. Every student takes a card. Students read their own card silently.
3. Starting with the first clue card, the cardholder will read aloud the information to the group. Groups discuss the shared information and how it could help solve the problem. Some questions could be:
    - *What information would be helpful to solve this problem?*
    - *Does this help us determine an answer? Do we need to pair it with another clue?*
4. Continue this process in numerical order, with the second clue card being read next by the cardholder, until all the cards have been read aloud and the group has solved the problem.

Notes

- **Language Support:** Consider modeling how to ask for and share information, clarification, justification, and elaboration. Display sentence frames or prompts to support students.

Examples: 4.5.13 Paint Can Mystery, 5.1.14 Lesson Learned

Citation: Adapted from Jeff Zwiers and his colleagues (2017).

MLR8: Discussion Supports

This routine supports precise and meaningful student discussion and the deepening of students' mathematical understandings. (MP1, MP3, MP6)

Discussion Supports	**Examples**
Pressing for Details: As students share responses, focused questions could help clarify their reasoning. Consider asking: ● *Why did you . . .?* ● *What information in the problem helped you . . .?*	2.2.08 Discovering Coins (Part 1)
Sentence Frames: Provide sentence frames for students to prime them at the beginning of a lesson or to guide conversation as a lesson is wrapping up. **Language Support:** Offering sentence frames provides all students access to participate in a discussion.	1.1.14 What Can We Say About the Data?
Making a Conjecture: Ask students to make a conjecture about an idea. As students share, record their conjectures. Have students discuss: ● *How do you know whether your conjecture is always true?* ● *Are there any counterexamples that show your conjecture is false?*	3.1.09 Arrays of Flavor
Revoicing: As students share their thinking, revoice their responses to amplify and demonstrate precise mathematical language. **Language Celebration:** As students are formalizing their mathematical vocabulary, consider researching how to say terms in other languages.	3.2.07 Toying with Tiles
Active Listening: As students discuss with a partner, encourage them to summarize their partner's response before adding an idea of their own. **Math Identity and Community:** This strategy can increase students' awareness of their mathematical identity by hearing their own mathematical ideas reflected back by their classmates.	GK.1.02 Pattern Blocks

Citation: Adapted from Jeff Zwiers and his colleagues (2017)