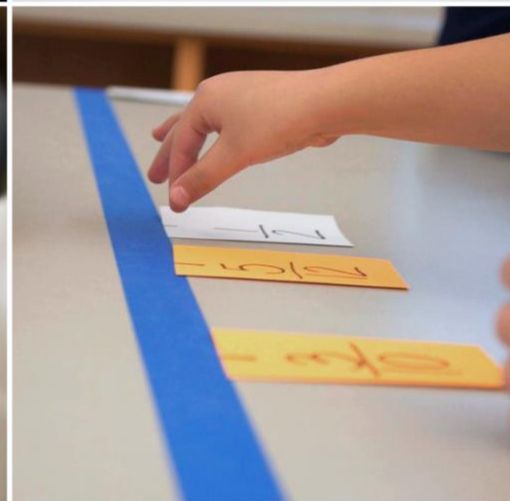
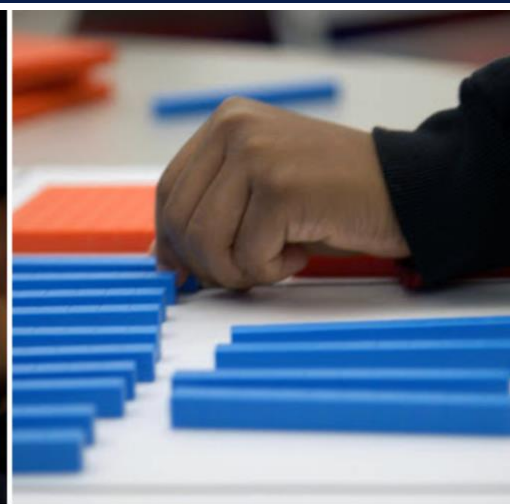


# Mathematics Intervention Toolkit: Introductory Module

## Facilitator Guide

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**U.S. Department of Education**

Linda McMahon  
*Secretary*

**Institute of Education Sciences**

Matthew Soldner  
*Acting Director*

**National Center for Education Evaluation and Regional Assistance**

Sarah Brasiel  
*Project Officer*

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*ORCID iDs*

Amy Brodesky <https://orcid.org/0009-0002-7730-5796>

Emily Fagan <https://orcid.org/0009-0002-5503-3355>

Kate Coleman <https://orcid.org/0000-0003-0939-8097>

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### Regional Educational Laboratory Northeast & Islands

Julie Riordan, Director  
Joy L. Kennedy, Applied Research Task Lead  
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Karen Shakman, Educational Consultant  
Emily Braham, Senior Research Associate  
Pradipti Bhatta, Project Associate  
Danielle Pacione, Project Coordinator  
Jenn Stiles, Research Associate

### Subject Matter Expert

Karen S. Karp, mathematics education professor and member of the expert panel for the What Works Clearinghouse Practice Guide *Assisting Students Struggling with Mathematics*

### Massachusetts Partnership to Support Student Learning Through Intervention

#### Arlington Public Schools

Octavia Brauner, Interim Mathematics and Computer Science Director  
Matt Coleman, Director of Data, Research, and Accountability  
Emily Veader, Lead K–5 Mathematics Coach

#### Boston Area Mathematics Specialists

Christine Size, Co-President

#### Boston Public Schools

Nonye Obiora, Program Director, Mathematics  
Stacey Solomon, Lead Program Director, Mathematics K–12

#### Cambridge Public Schools

Heidi Fessenden, District Math Coach  
Katisha John, District Math Coach

#### Five District Partnership

Matt Costa, Director of STEM, Revere Public Schools  
Rupi Kaur, Director of STEM, Everett Public Schools  
Rebecca Wilusz, Executive Administrator for Curriculum & Assessment, Five District Partnership

#### Hudson Public Schools

Robert Knittle, Director of Mathematics, PK–12

### Video Production and Photography

Jim Galdos, Videographer and Editor

## Collaborating Teachers and Mathematics Coaches

### **Boston Public Schools**

Wendy Alert  
Tamikha Cantave

### **Cambridge Public Schools**

Alicia Horwitz  
Jayne Lynch  
Meaghan Miller  
Julie Schineller  
Elizabeth Van Cleef

### **Everett Public Schools**

Lorraine Brady  
Danae Cardello  
Kerry Italiano

### **Hudson Public Schools**

Catherine Joyce  
Lisa Leger

### **Revere Public Schools**

Lisa Goldney  
Lani Gonzalez,  
Layne Grasse  
Christina Hopley  
Jill Morris  
Laura Peet  
Michelle Vail

## Participating School Districts

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# Introduction to the Course

The Mathematics Intervention Toolkit provides districts with resources to implement a **professional development (PD) course** with teachers of mathematics intervention in grades 3–6. The course focuses on the evidence-based recommendations of the What Works Clearinghouse Practice Guide *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades*<sup>1</sup> (WWC Guide). These recommendations are based on a rigorous review and synthesis of research studies of effective intervention practices. The PD course is designed to connect this important research to classroom practice by building teachers' knowledge and strategies for implementation with their students.

The course has a series of **modules** to support in-depth professional learning. The sequence starts with an Introductory Module and continues with five modules, each focusing on one recommendation from the WWC Guide.<sup>2</sup> These modules actively engage participants in exploring the recommendations, implementation steps, and evidence-based strategies. The Mathematical Language and Representations modules build a strong foundation for the later modules, Number Lines and Word Problems. The sequence ends with Systematic Instruction because this recommendation brings together strategies from the full course.

## Course Sequence

Introductory Module\*

Module 1: Mathematical Language

Module 2: Representations

Module 3: Number Lines

Module 4: Word Problems

Module 5: Systematic Instruction

\*Current Module

## Participants

The course is specifically designed for **teachers of mathematics intervention in grades 3–6**. This includes teachers with different roles, such as interventionists, Title I teachers, math specialists, general educators, and special educators. The recommendations and strategies will be applicable to teachers in different intervention settings, including separate intervention classes, intervention/enrichment blocks, and designated times for intervention during core mathematics classes. Similarly, the course will support teachers who use a variety of intervention programs/curricula or who do not have a program. During the course, teachers will have opportunities to learn about and apply strategies with their students.

## Facilitators

The course is intended to be led by a facilitator, such as a **school or district math leader, math coach, or teacher leader**. There can be one facilitator or two co-facilitators. Their main tasks are facilitating the

Fuchs, L. S., Newman-Gonchar, R., Schumacher, R., Dougherty, B., Bucka, N., Karp, K. S., Woodward, J., Clarke, B., Jordan, N. C., Gersten, R., Jayanthi, M., Keating, B., and Morgan, S. (2021). *Assisting students struggling with mathematics: Intervention in the elementary grades* (WWC 2021006). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. Retrieved from <http://whatworks.ed.gov/>.

The course focuses on five recommendations. Information about the sixth recommendation, Timed Activities, is available [in the WWC Guide](#).

professional learning community (PLC) sessions and communicating with participants. Course facilitators need expertise with elementary mathematics content and pedagogical practices, prior experience leading PD activities, and facilitation skills. They do *not* need to have already taken the course or be math intervention experts; they can learn together with the participants. The course provides ready-to-use resources, including Facilitator Guides, session agendas, slides with presenter notes, and handouts. Information about implementing the course is in the [Leader Guide](#).

## Format

The course modules use a **hybrid format** that combines online learning, PLC sessions (in-person or virtual), and classroom implementation. In the online sessions, participants learn about the recommendations through videos, readings, and activities. These flexible sessions are self-paced and asynchronous. At the facilitated PLC sessions, participants discuss the recommendations, try strategies, and prepare to use instructional routines with students. To connect research to classroom practice, the course provides ready-to-use routines that incorporate evidence-based strategies. Teachers use the routines with students and then share their experiences at subsequent PLC sessions.




## Mathematics Content Focus

The course focuses on key **number and operations** topics, such as **fractions**, that are a high priority for mathematics intervention. Building a strong foundation with fractions is critical for students' success with grade-level mathematics and future classes. The modules provide example activities for supporting students' learning of fraction magnitude, representations, equivalence, comparison, and operations. There are also activities on place value, decimals, number lines, and word problems with multiplication and division. In addition, participants will be able to apply the recommendations and strategies to other mathematics content areas.

"Intervention is an opportunity for students to build understanding in the most critical grade-level topics... Fractions in grades 3 and 4, for example, can be difficult for students and are critical for students to understand for virtually all new mathematics learning through middle and high school."

WWC Guide, p. 10

## Mathematics Intervention PD Course at a Glance

<b>Participants</b>	Teachers of mathematics intervention in grades 3–6. This may include interventionists, Title I teachers, general educators, and special educators.
<b>Facilitators</b>	One or two facilitators, such as mathematics leaders, mathematics coaches, PD providers, or teacher leaders.
<b>Instructional Strategies</b>	Recommendations and strategies from the WWC Practice Guide <i>Assisting Students Struggling with Mathematics</i> .
<b>Modules</b>	<p>The course modules focus on five recommendations from the WWC Guide:</p>  <p>The diagram shows six modules in a sequence, each in a colored box with a number: 1. Mathematical Language (purple), 2. Representations (green), 3. Number Lines (blue), 4. Word Problems (red), 5. Systematic Instruction (blue). An 'Intro Module' is shown in a dashed box to the left of the first module.</p>
<b>PD Hours, Duration, and Options</b>	<p>The full course (six modules) provides <b>28 PD hours</b>.          The course can be implemented during one or two school years.          Districts have options to implement shorter versions or individual modules.</p>
<b>Types of PD Activities</b>	<p>The modules include:</p> <ul style="list-style-type: none"> <li>• <b>Online sessions</b> with asynchronous activities, readings, and videos.</li> <li>• <b>PLC sessions</b> held in person or virtually.</li> <li>• <b>Instructional routines</b> to use with students.</li> </ul>
<b>Mathematics Focus</b>	<b>Number and operations</b> topics, including place value, fractions, decimals, and word problems with multiplication and division.
<b>Resources</b>	<p>Free, high-quality resources include:</p> <ul style="list-style-type: none"> <li>• <b>Course website</b> with online sessions, activities, and links to resources.</li> <li>• <b>Videos</b> of mathematics intervention classes and strategy demonstrations.</li> <li>• <b>Participant Workbooks</b> with handouts.</li> <li>• <b>Facilitator Guides</b> and slides with presenter notes.</li> <li>• <b>Leader Guide</b> with information on implementing the course.</li> </ul>
<b>District Requirements</b>	<p>Intended for districts that <b>offer mathematics intervention in grades 3–6</b>.          There are <b>no requirements</b> to use a specific intervention program. Districts that have various programs or that do <i>not</i> have one can implement the course.</p>
<b>What the Course Is and Is Not</b>	<p><b>It is</b> a high-quality <b>PD course</b> for teachers of mathematics intervention.  <b>It is <i>not</i></b> a mathematics intervention <b>curriculum</b>.</p>

**Website URL:** <https://ies.ed.gov/ncee/rel/math-support-grades-3-6>.

## What Are the Recommendations?

The course provides a deep dive into five recommendations<sup>3</sup> from the WWC Guide *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades*.

### Recommendations

- **Mathematical Language:** “Teach clear and concise mathematical language and support students’ use of the language to help students effectively communicate their understanding of mathematical concepts.”
- **Representations:** “Use a well-chosen set of concrete and semi-concrete representations to support students’ learning of mathematical concepts and procedures.”
- **Number Lines:** “Use the number line to facilitate the learning of mathematical concepts and procedures, build understanding of grade-level material, and prepare students for advanced mathematics.”
- **Word Problems:** “Provide deliberate instruction on word problems to deepen students’ mathematical understanding and support their capacity to apply mathematical ideas.”
- **Systematic Instruction:** “Provide systematic instruction during intervention to develop student understanding of mathematical ideas.”

WWC Guide, page 3

In the course, participants will explore these five recommendations in depth to build their knowledge and practices. Each recommendation has implementation steps that include specific instructional strategies and examples. In addition to learning about the strategies, participants will consider potential obstacles and the expert panel’s advice for addressing them. For each recommendation, participants will explore a common set of key questions (shown below).



### Key Questions

*Participants will explore these questions for each recommendation:*

1. **What** is the WWC Guide’s recommendation?
2. **Why** is the recommendation important for student learning?
3. What are **strategies** for **how to** implement the recommendation?
4. What are **ways to apply** the strategies with your students?
5. What are **potential challenges** and ways to address them?

The course focuses on five of the six recommendations. Information on the sixth recommendation, Timed Activities, is available in the [WWC Guide](#).

# Module Overview

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This module introduces the professional development (PD) course and the recommendations of the What Works Clearinghouse Practice Guide *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades* (WWC Guide). The Kick-Off Session provides information, activities, and discussions to jumpstart learning and prepare participants to use the course components. Participants will try an instructional routine that incorporates strategies from the WWC Guide and watch a classroom video example of the routine in action. As the facilitator, you will present information and engage participants in discussions and activities.



## Professional Learning Goals

Participants will:

- Build knowledge of the importance of providing intervention to students struggling with mathematics.
- Start learning about the WWC Guide's recommendations and strategies for assisting students struggling with mathematics.
- Learn about the PD course goals, sequence, activities, and how to use the Online Component.



## Key Questions

Participants will explore these questions:

1. Why is it important to provide intervention for students struggling with mathematics?
2. What are the WWC Guide's recommendations for assisting students struggling with mathematics?
3. How will you learn about the recommendations and evidence-based strategies in the course?
4. How does the course connect research to classroom practice?



## Mathematics Content Focus

The course focuses on high-priority mathematics topics, including fractions and decimals. In the Kick-Off Session, participants try an instructional routine for comparing fractions with benchmark numbers (0,  $\frac{1}{2}$ , and 1). In the routine, students are given cards with visual and numeric representations of fractions and need to sort them into three categories: Closer to 0, Closer to  $\frac{1}{2}$ , or Closer to 1. The routine builds and reinforces students' understanding of **fraction magnitude** and **fraction comparison**, which are essential foundational concepts for the elementary grades. In subsequent modules, teachers will have opportunities to apply this card sorting routine for different mathematics topics, including number line representations and equivalent fractions.

## Module Resources

The Introductory Module includes the following resources for facilitators and participants:

- **Online Component:** Provides information and resources for the module (see next section).
- **Facilitator Guide** (current document): Provides detailed information for facilitating the module, including an agenda, a preparation list, and pictures of the slides with presenter notes.
- **Slide Deck for Kick-Off Session:** Provides slides with presenter notes for facilitators. Note that these notes are the same as the ones in this guide.
- **Classroom Video Example:** The video, *Instructional Routine: Sort, Explain, and Generalize*, shows a mathematics intervention teacher and students using an instructional routine that features recommended strategies. At the facilitated Kick-Off session, participants will watch and discuss the video.
- **Participant Workbook:** Provides all the handouts that participants will use in the module.
- **Glossary:** Provides definitions for mathematical terms and other words that are relevant to the course modules.
- **Leader Guide:** Provides information on implementing the course, including scheduling, setting up PLC groups, facilitators' tasks, and answers to frequently asked questions (FAQs).

## Online Component

This component provides information, activities, and resources and is organized by tabs (figure 3).

**Figure 3. Tab Menu of the Online Component for All Sessions in this Module**



### Description of tabs:

- **Tab 1. Intro:** Introduces the module's goals, key questions, and sequence.
- **Tab 2. Course Info:** Provides information about the course and answers to frequently asked questions (FAQs).
- **Tab 3. Kick-Off Session:** Provides key resources and activities to use during and after the facilitated session.
- **Tab 4. Wrap-Up:** Provides a reflection activity for participants to complete individually.
- **Resources Tab:** Provides a hyperlinked list of resources for the module.

The **Mathematics Intervention Toolkit**, which includes all the PD course resources, is available for free at <https://ies.ed.gov/ncee/rel/math-support-grades-3-6>.

# Kick-Off Session

The Kick-Off Session launches the PD course by providing essential information and engaging participants in hands-on activities and discussions. The intention is to jumpstart participants' learning about the WWC Guide's recommendations and strategies. As the facilitator, you will present information and facilitate activities and discussions.

## Formats: In-Person or Virtual

The Kick-Off Session can be held in person or virtually. Launching the course with an in-person session is highly recommended but not required. There are benefits and challenges for each format.

- **In-Person:** For the Kick-Off Session, there are many benefits to meeting in person to launch the course. Bringing mathematics intervention teachers together in the same room can help to generate enthusiasm, foster collaboration, and set the stage for continuing to learn together in the course. The in-person format is particularly helpful for doing mathematics activities because it's a closer approximation to teaching students than a virtual format. One challenge of the in-person format is scheduling, particularly if participants are coming from different schools.
- **Virtual:** One benefit of the virtual format is more flexibility in scheduling. One limitation is that the virtual versions of the mathematics activities are different from what teachers would do with students in their classrooms. For the virtual format, we recommend having a smaller group of teachers (12 or fewer) to support active participation. If you have a larger group, it's helpful to have two or more facilitators and use breakout rooms.

## Session Lengths

For this first session of the course, there are several time options:

- **1.5 or 2-hour options for Kick-Off Session:** The agenda provides times for two session lengths so that you can choose an option to fit your situation. Both can be used with in-person or virtual formats. It's recommended that the session be at least 1.5 hours long to allow sufficient time for the content and activities. The 2-hour session length offers more time for discussions and activities. This option works well for large groups because activities tend to take longer when there are more participants.
- **Full-day Option that Combines Kick-Off and Mathematical Language Sessions:** This in-person option starts with the Kick-Off Session and then engages participants in the first half of the Mathematical Language Module. Having an in-person full-day session has many benefits for launching the course. It immerses participants in the content, motivates interest, and helps build a learning community.

### Agenda

- Section 1. Welcome and Goals
- Section 2. Making the Most of Math Intervention
- Section 3. Recommendations and Strategies
- Section 4. Instructional Routines
- Section 5. Course Orientation
- Section 6. Wrap-Up

## Preparation Tasks

Use this list to prepare for facilitating the session.

### 1. Get to know the session.

- **Agenda:** Review the agenda for the session.
- **Slides:** Review the slides and presenter notes in this Facilitator Guide or in the [slide deck](#).
  - You can choose to customize some slides for your district and teachers. If your district has established **norms** for PD sessions, you may want to add them to Slide 4.
  - For Section 5, Course Orientation, you may need to change slides to fit your situation. Slide 39 shows an example schedule that you can replace with your schedule. If you are **not** using all six modules, change the PD hours and course length on this slide.
  - Add the **date** for the next session to Slides 46 and 47. These slides have highlighted text in brackets for you to fill in the [date/time].
- **Video:** Watch the classroom video, [Instructional Routine: Sort, Explain, Generalize](#). Write down your own responses to the focus questions (Slide 32). This will help you prepare to facilitate the discussion.
- **Activities:** Try the card sorting routine yourself to get familiar with it.

### 2. Prepare and gather materials. See the materials list on the next page.

### 3. Build your knowledge about the full course. Read the **Course Info tab** of the Online Component. This webpage includes responses to frequently asked questions (FAQs).

## For Virtual Formats

**Plan how you will implement the card sorting routine** (Section 4 of the agenda). You can use a virtual version of the activity, which is found on the Kick-Off Session tab of the Online Component. Note that this virtual activity is set up so that each person opens their own copy. It's **not** possible for two participants to both move cards concurrently on the same screen. Here are two options for using the activity at your session:

- a. Pairs in breakout rooms:** Move pairs of participants into separate breakout rooms. In each pair, partner 1 shares their screen and moves the cards for *both* participants. Partner 2 says where they want to place a card, and partner 1 moves it to that category for them. Make sure that participants will be able to screen share in breakout rooms.
- b. Whole group:** Facilitate a whole-group version of the activity. Share your screen, and ask participants to take turns telling you where they want to place a card and why. You will move the cards for each person. Be sure to clarify how this version is different from what students would do to sort physical cards in pairs.

## Communication Tasks

- 1. Before the session.** Send reminders to participants with the session's date/time, topic, and any materials to bring.
- 2. After the session.** Send emails to remind and encourage participants to complete the reflection activity on the Wrap-Up tab of the Online Component.

## Materials List

Use this list to prepare materials for the session.

### For Both Formats (in-person and virtual)

- Slide Deck for Kick-Off Session:** Download the file to your computer. Presenter notes are provided below each slide and in this Facilitator Guide.
- Participant Workbook/Handouts:** You can choose to print the full workbook or just the handouts (H1–H7), one copy per participant. Printing the Appendix is optional. Participants will have access to the electronic file version of the workbook.
  - Before making copies, add the course's dates to the handout titled **H6. Course Checklist**.
- Classroom Video Example:** Be prepared to show the video. [\*Instructional Routine: Sort, Explain, and Generalize\*](#) by doing *one* of the following:
  - Project the video (in-person)       Share your screen (virtual)
  - Have participants watch individually on their devices (with headphones when in person)

### For In-Person Sessions

- Prepare chart papers for:** 1) Agenda, 2) Norms, and 3) Parking Lot. Have additional chart papers available if you want to record ideas during discussions.
- Card sorting activity:** Prepare one card set per pair of participants. Print and cut the cards and the sentence starter from the reproducible handouts in the [Participant Workbook, Appendix A](#).
- Fraction tiles or fraction circles:** One set per pair of participants to use as needed.

### For Virtual Sessions

- Participant Workbook/Handouts:** Provide a printed copy in advance for participants to use at the virtual session. Remind participants to bring it to the session.
- Card sorting activity:** Use the virtual version that is available on the Kick-Off Session tab of the Online Component. Another option is to prepare card sets to give to participants in advance.
- Optional: Fraction tiles or circles:** Ask participants to bring a set.

## Agenda for Kick-Off Session

This agenda provides times for two session lengths: A) 1.5 hours/90 minutes or B) 2 hours/120 minutes. The session's six sections and main activities are listed below. All the handouts are in the Participant Workbook.

Section	A. 1.5 hrs./ 90 min.	B. 2 hrs./ 120 min.
<b>A. Welcome and Goals</b> Introduce the agenda, goals, and norms. <ul style="list-style-type: none"> <li>Warm-Up: Partner discussions. (~6 min.)</li> </ul> <b>Slides:</b> 2–7 <b>Handout:</b> H1	15 min.	15 min.
<b>B. Making the Most of Mathematics Intervention</b> Provide information and suggestions for mathematics intervention. <ul style="list-style-type: none"> <li>Facilitate a short discussion (5–7 min.).</li> </ul> <b>Slides:</b> 8–15	15 min.	15–20 min.
<b>C. Recommendations and Strategies</b> Provide a preview of the five recommendations in the course. <b>Slides:</b> 16–23 <b>Handout:</b> H2	10 min.	10 min.
<b>D. Instructional Routines</b> Introduce the routines and how they connect research to practice. <ul style="list-style-type: none"> <li>Activity: Try the routine. (A: 10–15 min.; B: 15–20 min.)</li> <li>Activity: Watch and discuss video, <a href="#">Instructional Routine: Sort, Explain, and Generalize</a> (A: 20 min.; B: 25 min.)</li> </ul> <b>Slides:</b> 24–37 <b>Handouts:</b> H3–H4	40–45 min.*	50–55 min.*
<b>E. Course Orientation</b> Provide information about the course. <ul style="list-style-type: none"> <li>Activity: Walk-through of the Online Component. (5–7 min.)</li> </ul> <b>Slides:</b> 38–42 <b>Handout:</b> H5	8 min	10 min
<b>F. Wrap-Up</b> Facilitate a short wrap-up discussion. Go over tasks for the next module. <b>Slides:</b> 43–47 <b>Handout:</b> H6	5–7 min.	10 min.

\*This session is designed to take a total of 90 or 120 minutes. Use the time ranges for each section to increase or decrease times to fit the needs of your group.

## Options for Adjusting the Time

The agenda provides options for 1.5 hour and 2-hour sessions. The recommendation is to allow at least 1.5 hours for this session. If you need to reduce the time, consider the guidance below.

- If your session is **1 hour** long:
  - Make sure to include Sections 1–3 to provide essential background information.
  - Section 4: Skip having participants try the routine themselves (Slides 28–30) and move to watching the video example.
  - Section 5: Skip the walk-through of the Online Component (Slide 42).

### Tips for Facilitators

- Feel free to communicate the information in your own words. The presenter notes are just meant to be examples of what you might say.
- To prepare for the session, read through the presenter notes. When you facilitate, please do not be concerned about remembering everything in the notes. It's okay if you do not talk about all the points. The main points are on the slides.
- Stay focused on the agenda, and avoid having the group go off on tangents. Use a Parking Lot chart paper to note topics/questions that you do not have time to discuss at the session so that you can revisit them at another time.
- It's okay to adjust the times in the agenda. The times will vary for different groups—some groups are more talkative than others. In addition, a session may take longer the first time you facilitate it. In the presenter notes, there are suggestions for what to shorten or skip if time is short.
- Foster a welcoming, supportive, and collaborative learning community. Invite active participation and sharing of ideas. Revisit the goals and norms at each session to keep them in the forefront of the group's work together.
- Look for opportunities to make connections to participants' experiences and your school/district context.

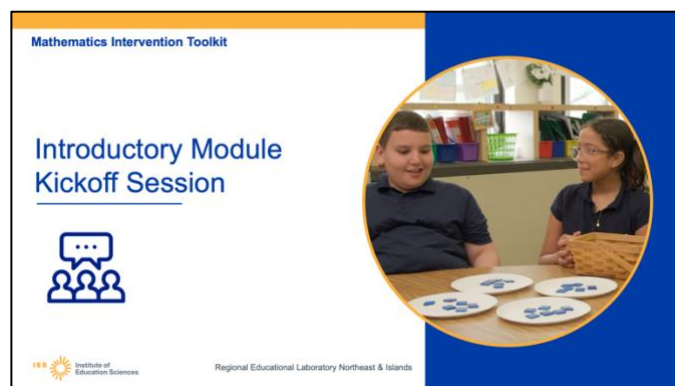
## Slides with Presenter/Facilitator Notes

This section provides a picture of each slide with corresponding presenter notes. The information is organized into these categories:

- **SLIDE NUMBER:** The slides are in sequence by number to match their order in the deck.
  - An asterisk \* indicates that the slide is animated.
- **NOTES:** Provides directions and information for the facilitator, such as how to set up an activity. Some slides do not have any notes.
- **SAY:** Provides suggestions of ideas about what to say and do. It is *not* meant to be a script. Use these examples to communicate the ideas in your own way.
  - Regular text provides an example of what to **say**.
  - *Italicized text indicates something you or participants should do.*
  - [Highlighted text in brackets] indicates information about session dates, times, and other information that you need to fill in to fit your implementation of the module.

### SLIDE 1

**NOTES:** Display this slide at the start of the session.



### Section 1. Welcome and Goals

**Time:** About 10–15 minutes for this section; includes 6 minutes for the warm-up discussion in pairs (Slide 7). If this is the first time participants have worked together, you may want to extend the time for the warm-up and include an icebreaker question.

**Slides:** 2–7

**Handout:** H1. Course Goals

### SLIDE 2

**SAY:** Let's start today's Kick-Off Session for the Mathematics Intervention course.



### SLIDE 3

**SAY:** Here is our agenda. In this first section, we will introduce the course goals and have a warm-up discussion. Next, we will move to our central focus on making the most of mathematics intervention. Section 3 will provide an overview of the research recommendations. In section 4, we will try an instructional routine and watch a classroom video example. Section 5 will provide information about the course and the Online Component. We will close with a short Wrap-Up.

**Kick-Off Session: Agenda**

- Section 1.** Welcome and Goals
- Section 2.** Making the Most of Mathematics Intervention
- Section 3.** Recommendations and Strategies
- Section 4.** Instructional Routines
- Section 5.** Course Orientation
- Section 6.** Wrap-Up

**Participant Workbook** has all the handouts and additional resources.

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The Participant Workbook has all the handouts for today's session and additional resources.

### SLIDE 4

**NOTE:** If your district has norms for PD sessions, you have the option of adding to or changing the norms on this slide.

**SAY:** Let's go over the norms for our work together in this course. Engage in the activities, share your ideas, ask questions, and support each other's learning. It's important that we look for and build upon strengths—our own strengths as teachers and the strengths of our students. Let's also plan to prioritize staying focused on mathematics intervention strategies and using our time productively. To do that, it's essential to avoid electronic distractions.

**Norms**

- Engage in the activities, contribute ideas, and ask questions.
- Support each other's learning and use of the strategies.
- Look for and build upon strengths.
- Stay focused and use our time productively.
- Avoid electronic distractions.

**Parking Lot:** We will note topics that we do not have time to discuss today and follow up later.

Institute of Education Sciences | Introductory Module | Source: Toolkit Authors | 4

### SLIDE 5

**SAY:** Our overarching goal is to improve student learning. We're here to learn together about ways to strengthen instruction and support for students struggling with mathematics.

**Overarching Goal: Improve Student Learning**

- Strengthen instruction and support for students struggling with mathematics.
- Increase students' mathematics knowledge and confidence as learners.

Institute of Education Sciences | Introductory Module | Source: Toolkit Authors | 5

## SLIDE 6

**NOTES:** When you introduce the course goals, you may want to talk about how these goals align with your district's goals and initiatives. This helps to communicate the importance of taking the course and that teachers' participation is valued.

**SAY:** There are four main goals for the PD course. *Read the goals on the slide.*

Next, I want to give you a few minutes to reflect on these course goals and how they resonate with you.

Please take out the handout titled **H1. Course Goals**, which has a place for you to write your learning goals. It is on page 3 of the Participant Workbook. Complete the three sentence starters. *Give participants a few minutes to write goals on their handout.*

*Note: Hold off on having participants share their goals until the warm-up discussion on the next slide.*

## SLIDE 7

**NOTES:** Provide about **6 minutes** for the partner discussions. If participants have not worked together before, you may want to add an icebreaker question and extend the time.

**SAY:** To get started, let's have short partner conversations. Introduce yourselves and then share ideas for the two prompts on the slides. We'll spend about 6 minutes on this warm-up.

*Follow the directions below for your format.*

- **IN-PERSON SESSIONS:** *Move participants into pairs to discuss the warm-up questions.*
- **VIRTUAL SESSIONS:** *Use breakout rooms for partner discussions. Paste the questions into the chat so they are visible in the breakout rooms.*

## Section 2. Making the Most of Mathematics Intervention

**Time:** About 15 minutes for this section, including a short discussion on Slide 15 (~5 min.).

**Slides:** 8–15

### Suggestions Related to Time:

- It's important to use the full section because it frames the course's central focus on strengthening mathematics intervention to support students struggling with mathematics.
- If you have a 2-hour session, you may want to extend the time for the discussion on Slide 15.

### SLIDE 8

**SAY:** In this section, we will focus on our central question of how to make the most of intervention to support students struggling with mathematics.



### SLIDE 9\*

**SAY:** Let's talk about the importance of intervention in the elementary years. As students move through the grades, those performing below grade level may fall even further behind their higher-performing peers, widening the opportunity gap.

Mathematics intervention can help build a strong foundation to support students' current and future success.

**Importance of Mathematics Intervention**

**Issue:** Many students are not reaching proficiency on grade-level standards. Over time, students with low mathematics performance may fall further behind higher performing peers, widening the opportunity gap (NAEP).

**Intervention in the elementary grades is important** for supporting students' current and future success with mathematics.

**Central Questions for the Course**

- What are effective strategies to support students struggling with math?
- How can we make the most of intervention to improve student learning?

*Use the animation to show the central questions on the slide.*

Here are two central questions for our work together: What are effective strategies to support students struggling with mathematics? What are ways to make the most of mathematics intervention? Let's look at some suggestions on the next slides.

## SLIDE 10

**SAY:** It's essential that we use evidence-based strategies to support students in mathematics intervention. The course is based on the What Works Clearinghouse Practice Guide, *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades*.

Researchers identified and reviewed forty-four studies on effective intervention for students with mathematics difficulties. Then they convened a panel of experts in mathematics education and special education to synthesize the findings. The WWC Guide provides six recommendations for educators with implementation steps and evidence-based strategies to use with students.

During the course, you will read excerpts from The WWC Guide that are included in your Participant Workbooks.

**Use Evidence-Based Strategies**

- Course focuses on the What Works Clearinghouse Practice Guide: **Assisting Students Struggling with Mathematics** (WWC Guide).
- Education experts and researchers reviewed 44 **studies on effective mathematics intervention practices**.
- WWC Guide provides **recommendations** with implementation steps and evidence-based strategies.

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## SLIDE 11

**SAY:** The course focuses on five recommendations on the topics of mathematical language, representations, number lines, word problems, and systematic instruction. All five recommendations were rated as having Strong evidence by the What Works Clearinghouse. That means there is consistent evidence that the practices improve outcomes for diverse student populations. The recommendations are numbered to show the order that we will explore them in the course. There isn't an order for implementing them with students. The Practice Guide advised that the recommended practices be used "in combination to help students achieve the strongest outcomes" (p. 3). We'll talk more about the recommendations in the next section.

**Learn about Five Recommendations in the Course**

1. Mathematical Language
2. Representations
3. Number Lines
4. Word Problems
5. Systematic Instruction

- WWC rated all five as having **Strong Evidence**. This means there is consistent evidence that the practices improve outcomes for a diverse student population.
- **Use recommendations in combination** to help students achieve the strongest outcomes.

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## SLIDE 12

**SAY:** Another suggestion for making the most of intervention is to focus on high-priority mathematics topics. This makes sense given the common challenge of a lot of content to teach and limited intervention class time. This PD course is focused on using evidence-based strategies to build students' understanding of high-priority number and operations topics, particularly fractions. The strategies are also applicable to other mathematics topics and can be applied throughout the year.

### Focus on High-Priority Mathematics Topics


**Common Challenge: Too much content, too little time!**


**Use intervention time for high-priority mathematics topics.**

- Number and Operations standards for upper elementary grades.
  - Topics like fractions that pose challenges for students.

**PD course** focuses on high priority topics, including **place value, fractions, decimals, and word problems with multiplication and division.**

- Strategies apply to other mathematics topics and can be used throughout the year.





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Sources: WWC Guide and Toolkit Authors
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## SLIDE 13

**SAY:** To build students' understanding of these high-priority topics, it's essential that students are actively involved in doing mathematics and talking about their ideas. Mathematics intervention can provide a smaller, safer setting for students to work on mathematics tasks, explain their thinking, and feel comfortable making mistakes and asking questions. In the course, we will try example activities and instructional routines that engage students in doing mathematics and provide visual and verbal supports for their learning.

### It's Essential for Students to Actively Do Mathematics

- Engage students in doing mathematics and talking about their ideas.
- Set high expectations and provide support.
- Build a supportive learning community so students feel comfortable sharing their work, asking questions, and making mistakes.

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Sources: WWC Guide and Toolkit Authors
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## SLIDE 14

**SAY:** The Guide recommends building on students' strengths.

*Ask a participant to read the quote aloud.*


Mathematics intervention sessions can provide a great opportunity to learn about and connect to students' strengths. Having a small class size can give students more voice and time to do mathematics. These opportunities can help us learn more about students' understanding and difficulties and plan instruction to support them.


### Use Strengths-Based Approaches

"When students are solving problems, encourage them to articulate their thinking so that you can **identify their strengths**.

Ask probing questions to identify any misconceptions and **build on their strengths** to correct those misunderstandings."

WWC Guide, p. 7




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Sources: WWC Guide; Photo from Toolkit Authors
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**SLIDE 15**

**SAY:** Here is a summary of the suggestions from this section, with one addition: building your own knowledge and practices through professional learning, like this course. This is not meant to be an exhaustive list, and there are additional ways to strengthen mathematics intervention.

*Ask:* What is one idea that stands out for you or a suggestion you would add?


*Participants share ideas.*






### Making the Most of Mathematics Intervention

**Suggestions**

- Use evidence-based strategies from the WWC Guide.
- Focus on high-priority mathematics topics.
- Actively engage students in doing mathematics and communicating ideas.
- Use strengths-based approaches.
- Build your knowledge and strategies through professional learning.

 **Discuss:** What is **one idea** that stands out to you or that you would add?

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  Sources: WWC Guide and Toolkit Authors    
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**Slide 15: Example Responses**

**Question:** What is one idea that stands out for you or a suggestion you would add?

- One idea that stands out for me is focusing on high-priority mathematics topics. It is very important to prioritize what mathematics content is essential so that we can maximize intervention time.
- Something that resonates with me is that students should be actively engaged in doing the mathematics and in sharing their ideas. Doing mathematics and having opportunities to discuss ideas is where I think a lot of learning occurs.
- I think another important way to make the most of mathematics intervention is to build relationships with and among students. Feeling connected as a community of learners who care about each other can help students to feel safe and supported, allowing them to take risks in their mathematics learning.

**Section 3. Recommendations and Strategies**

**Time:** About 10 minutes to provide a brief overview of the recommendations.

**Slides:** 16–23

**Handout:** H2. Overview of Recommendations

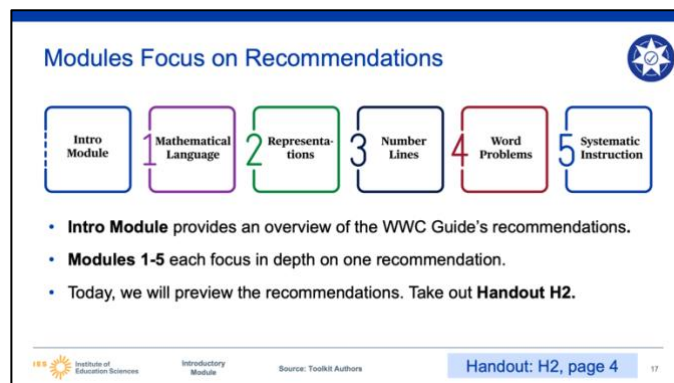
**SLIDE 16**

**SAY:** In this section, we will provide a brief overview of the recommendations from the WWC Guide.

**SLIDE 17**

**SAY:** This picture shows the sequence of the modules in the course. We're in the Introductory Module, and then there are five modules that each focus in depth on one recommendation.

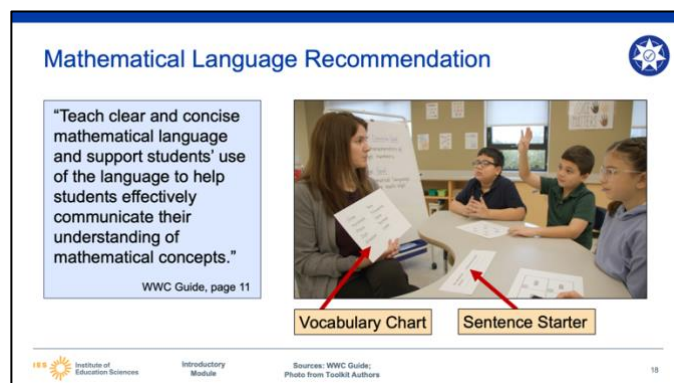
Please take out the handout titled **H2. Overview of Recommendations** on page 4. We'll preview each recommendation on the next slides.

**SLIDE 18**

**SAY:** I'll provide a brief preview of each recommendation and show photos of example strategies from the classroom videos in the course. Let's start with the mathematical language recommendation.

*Read the quote or ask a participant to read it aloud.*

This classroom photo previews two example strategies for supporting students' communication—using vocabulary charts and sentence starters. A sentence starter begins a sentence for students to finish, helping them to explain their ideas. These strategies are used in mathematics and other content areas and are helpful for students struggling with mathematics and multilingual learners. In the Mathematical Language Module, we'll explore a variety of strategies for supporting student communication to build mathematics understanding.



## SLIDE 19

**SAY:** Module 2 focuses on the recommendation for representations. Here is a quote from the WWC Guide.

*Read quote or ask a participant to read it aloud.*

We will focus on using and connecting concrete, semi-concrete, and abstract representations.

**Concrete representations** include manipulatives like the fraction tiles and base ten blocks shown here.

**Representations Recommendation**

"Use a well-chosen set of concrete and semi-concrete representations to support students' learning of mathematical concepts and procedures."  
WWC Guide, page 21

**Concrete (3D): Base ten blocks**

**Semi-Concrete (2D): Drawings**

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**Semi-concrete representations** are two-dimensional representations such as drawings, diagrams, number lines, and tables.

**Abstract representations** are, as they sound, more abstract mathematical representations like symbols, numbers, equations, and other mathematical notation. The photos here show students using and connecting representations of decimals.

## SLIDE 20

**SAY:** Module 3 focuses on the number lines recommendation. Number lines are a semi-concrete representation, so they could have been included in the representations recommendation. The authors of the WWC Guide decided to make number lines a separate recommendation to emphasize their importance. Recent research indicates that the number lines representation is effective for building students' understanding of fractions and other rational numbers and that it is particularly helpful for students struggling with mathematics. Number lines can also pose challenges for students, so we will explore ways to make them more accessible, such as the examples in these photos—using fraction tiles to build number lines and placing fractions on large number lines by using benchmark numbers.

**Number Lines Recommendation**

"Use the number line to facilitate the learning of mathematical concepts and procedures, build understanding of grade-level material and prepare students for advanced mathematics."  
WWC Guide, page 29

**Build number lines with fraction tiles**

**Place fractions on a large number line**

Institute of Education Sciences | Introductory Module | Sources: WWC Guide; Photos from Toolkit Authors | 20

## SLIDE 21

**SAY:** Module 4 focuses on the word problems recommendation. Understanding and solving word problems is important for students' success in grade-level and future mathematics. But solving word problems tends to pose challenges for students struggling with mathematics.

The WWC Guide recommendation says... *Read quote or have a participant read it aloud.*

Some example strategies include teaching students to identify word problem types and using representations to model and solve problems. This photo shows an example of a teacher and students acting out a word problem by distributing tiles onto paper plates to make equal groups.

**Word Problems Recommendation**

"Provide deliberate instruction on word problems to deepen students' mathematical understanding and support their capacity to apply mathematical ideas."

WWC Guide, page 40

Model a word problem by placing tiles on plates to make equal groups.

Institute of Education Sciences | Introductory Module | Sources: WWC Guide; Photo from Toolkit Authors

## SLIDE 22

**SAY:** Module 5 focuses on systematic instruction. The WWC Guide recommendation says... *Read quote or have a participant read it aloud.*

What is systematic instruction? *Read the three bullet points.*

The photo shows an example of students using the visual supports of fraction tiles and mini whiteboards.

We are focusing on the systematic instruction recommendation at the end of the course because it brings together strategies from the prior modules.

**Systematic Instruction Recommendation**

"Provide systematic instruction during intervention to develop student understanding of mathematical ideas."

WWC Guide, page 5

**Systematic Instruction uses:**

- Intentional, cohesive sequences to build understanding.
- Visual and verbal supports.
- Strategies from the other recommendations.

Visual supports: fraction tiles and whiteboards

Institute of Education Sciences | Introductory Module | Sources: WWC Guide; Photo from Toolkit Authors

## SLIDE 23

**SAY:** In each module, we will explore the same set of key questions about the focus recommendation. *Read the questions.*

We will address not only what the recommendations and strategies are, but also how to implement them effectively with students. Some of these strategies may be new to you, and others may be a part of your daily practice. The modules are designed to support the professional learning of participants with a range of prior experiences.

You'll have opportunities to try new strategies and to go deeper with strategies that you currently use.

**Key Questions for Each Recommendation**

**Each module explores these questions:**

- **What** is the WWC Guide's recommendation?
- **Why** is the recommendation important for student learning?
- What are **strategies** for **how to** implement the recommendation?
- What are **ways to apply** the recommended strategies with your students?
- What are **potential challenges** and ways to address them?

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## Section 4. Instructional Routines

**Time:** The amount of time for Section 4 is different for the two sessions lengths:

- A. **90-minute session:** About **40–45 minutes** in all, including trying the card sorting routine (10–15 min.) and watching and discussing the video (20 min.).
- B. **120-minute session:** About **50–55 minutes** in all, including trying the card sorting routine (15–20 min.) and watching and discussing the video (25 min.).

**Slides:** 24–37

**Handouts:** H3. **Try an Example Routine** and H4. **Video Observations and Discussion**

**Materials:**

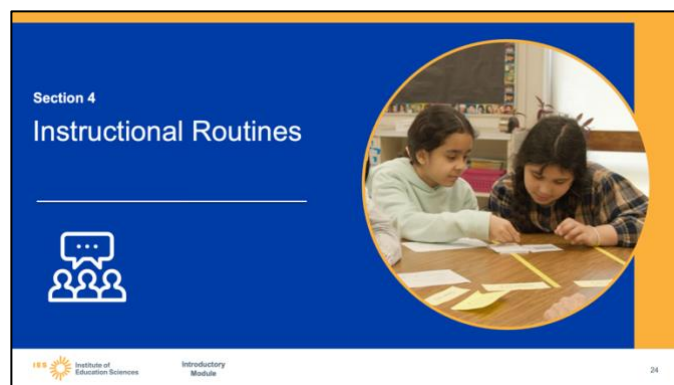
- One card set per pair of participants or use the virtual activity on the Kick-Off Session tab of the Online component.
- Fraction tiles or circles to use as needed. (See Materials List section.)
- Be prepared to show the video, [\*Instructional Routine: Sort, Explain, and Generalize\*](#).

**Suggestions Related to Time:**

- **If time is short**, consider these suggestions:
  - It's important to introduce how instructional routines are used in the course and to watch and discuss the classroom video. It's okay to shorten the time for participants to try the card sorting routine themselves (Slides 28–30).
  - Another option is to shorten Sections 5 and 6 to have more time for this section.
- **If additional time is available**, it's helpful to provide more time for participants to try the card sorting routine themselves and to discuss the classroom video example.

## SLIDE 24

**SAY:** In this section, I will provide an overview of the instructional routines that are a key component of this course. We'll try an instructional routine that uses recommended strategies to support students' learning about fractions. We'll watch and discuss a video of the routine in action in an intervention class.



## SLIDE 25

**SAY:** The course has five instructional routines that are designed to connect the research recommendations to classroom practice. This slide shows the title of each routine and a still from each of the classroom videos of the routine in action with students. Today, we will try the first routine, “Sort, Explain, and Generalize.”

## SLIDE 26

**SAY:** Let’s get to know some features of the instructional routines you’ll be learning to use in the course. Each routine incorporates evidence-based strategies from the WWC Guide. The routines have a consistent structure and sequence of activities that can be replicated with different mathematics content and problems. They are designed to be hands-on, engaging, and accessible, and focus on high-priority mathematics content. The routines are ready to be integrated into any intervention program. And why are they helpful for mathematics intervention? Once students become familiar with a routine, they know what to expect and can more comfortably engage in doing mathematics.

## SLIDE 27

**SAY:** Let’s try an example routine which is called, “Sort, Explain, and Generalize.” This routine incorporates recommended strategies and can be used for a variety of mathematics topics. Today, we’ll use the routine to sort representations of fractions by comparing them with benchmark numbers.

This routine has three steps. Let’s move on to try Step 1.

## SLIDE 28

**NOTES:** Go over the directions on the slide and then give participants about 6 minutes to sort some of the cards. They are not expected to sort the full deck. If you have additional time available, have participants sort more cards.

**SAY:** We will do the first step of the card sorting routine ourselves and then watch a video example. Take out the handout titled **H3. Try an Example Routine** on page 5. Let's go over the directions. We will move into pairs to do the card sorting routine.

You will get a deck of cards that have different representations of fractions. The slide shows an example fraction card. The shaded parts show the fraction. You need to look at the fraction and decide which category to place it in. The categories are Closer to 0, Closer to  $\frac{1}{2}$ , and Closer to 1.

When you place the fraction, use the sentence starter to explain your reasons, such as, "The fraction is closer to 1 because it is only missing one piece to make a whole." Then your partner responds by saying "I agree because..." or "I disagree because..." We will spend about 6 minutes sorting some of the cards— you are not expected to sort the full deck. Make sure to use the sentence starter to explain your reasons to each other.

Use the guidance below to set up the activity for your format.

- **FOR IN-PERSON SESSIONS:** Have participants work in pairs. Give each pair a set of fraction cards to sort on a desk or table.
- **FOR VIRTUAL SESSIONS:** Use the virtual version of the activity, which is on the Kick-Off Session tab of the Online Component. Note that this virtual activity is set up so that each person opens their own copy. It's **not** possible for two participants to both move cards concurrently on the same screen. One option is to use breakout rooms for pairs of participants to do the activity. In each pair, partner 1 shares their screen and moves the cards for both participants. Partner 2 says where they want to place a card and partner 1 moves it to that category for them. Make sure that participants will be able to screen share in breakout rooms. Another option is to do the activity with the whole group by sharing your screen. Ask participants where they would place a card and then move the card for them.

**Routine**  
**Step 1. Sort Cards and Explain Reasons**

**Work in pairs and take turns.**

- Take a card and look at the fraction. The **shaded part** shows the fraction.
- Compare the fraction to benchmark numbers. Decide which category to place it in:

Closer to 0
Closer to  $\frac{1}{2}$ 
Closer to 1

- Place the card in a category. Explain your reasons by using the sentence starter:  
**The fraction is closer to \_\_\_ because ...**
- Then, your partner will say:  
**I agree because... OR: I disagree because...**

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 Source: Toolkit Authors   
Handout: H3, page 5    28

## SLIDE 29

**NOTES:** Use this slide to provide an overview of what the teacher and students do in Step 2 of the routine. There is not enough time in the 90-minute agenda to discuss the questions.

**SAY:** Step 2 of the routine is to discuss and generalize. In this step, the teacher reveals each category one by one. Students are able to compare their sort with the teacher's sort and ask questions about anything they sorted differently. Then, the teacher uses these prompts to bring out important ideas about the fractions in each category. When we watch the video in a little bit, you'll see the teacher and students discuss these questions.

*Routine*  
**Step 2. Discuss and Generalize**

**Here's what the teacher and students do:**

- Look at the answers for one category at a time.
- Discuss each category: **Closer to 0,  $\frac{1}{2}$ , 1**
  - What do you notice about the fractions in the **Closer to \_\_\_** category?
  - What do the visual models have in common?
  - What do the numbers have in common?

Handout: H3, page 5

## SLIDE 30

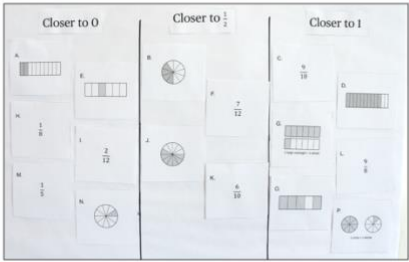
**SAY:** This slide shows the answer key for the three categories. Take a moment to look over the cards in each category.

What is one card that you think will be challenging for students to place? Why?

*Participants share ideas.*

*Routine*  
**Review Answers and Identify Potential Challenges**

- Review the answers:**
  - Closer to 0: A, E, H, I, M, N
  - Closer to  $\frac{1}{2}$ : B, F, J, K
  - Closer to 1: C, D, G, L, O
- Discuss:** What is one card that you think will be challenging for students to place in a category? Why?



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### Slide 30: Example Responses

**Question.** What is one card that you think will be challenging for students to place in a category?

- The card with the number  $\frac{1}{5}$  may be more challenging for students to place because it may be a less familiar fraction, and the denominator is an odd number.
- I think students might have difficulties with the visual representations that are greater than 1. They may not pay attention to the information about what the whole equals. They might think the card with two rectangles shows  $\frac{7}{12}$  instead of  $\frac{7}{6}$ .

## SLIDE 31

**SAY:** Next, we are going to watch a video example of the routine in action in a grade 4 mathematics intervention classroom. Throughout the course, we will use these two norms for watching classroom videos: Please observe the teachers and students without judging, and look for ideas to apply with your students. When we watch videos, we also use focus questions to guide our observations. There are many possible things to notice in a video, so having these specific questions helps to focus our observations and discussions. Please take out the handout titled **H4. Video Observations and Discussion**. As you watch, jot down notes for the focus questions, and we will discuss them afterwards.

Read the focus questions. Show the video, [Instructional Routine: Sort, Explain, and Generalize](#), by using the sequence below.

- Watch Step 1 (stop at 7:20). Have participants talk briefly with a partner about the first question.
- Watch Step 2 (7:20–12:15). Move to the next slide to discuss the video with the group.

### Watch a Classroom Video Example

**Norms**


- Observe, without judging, the teachers and students.
- Look for ideas to apply in your practice.


**Focus Questions**

1. How does the teacher support students in sorting fractions and explaining their ideas?
2. What do you notice about students' understanding of and challenges with comparing fractions to benchmark numbers?

**Video:** [Instructional Routine: Sort, Explain, and Generalize](#)

- Watch Step 1 (stop at 7:20) and then discuss with a partner.
- Watch Step 2 (7:20–12:15) and then discuss with the group.




Introductory Module
Source: Toolkit Authors

Handout: H4, page 6

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## SLIDE 32

**NOTES:** We suggest starting with small-group discussions so more participants have the opportunity to talk.

**SAY:** Let's discuss our observations of the video by using the focus questions and keeping in mind the norm of not judging the teacher or students.

*Ask each question and have participants share.*

### Discuss Classroom Video




**Observations**

1. How did the teacher support students in sorting fractions and explaining their ideas?
2. What did you notice about students' understanding of and challenges with comparing fractions to benchmark numbers?

**Ideas to Apply**

3. What are 1–2 ideas from the video that you would like to apply with your students?


Introductory Module
Source: Toolkit Authors

Handout: H4, page 6

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### Slide 32: Example Responses

**Question 1.** How did the teacher support students in sorting fractions and explaining their ideas?

- The teacher used fraction circles to support students in comparing fractions with benchmarks.
- Together, the teacher and students created and discussed visual models to help make sense of the meaning of “closer to 0,” “closer to  $\frac{1}{2}$ ,” and “closer to 1” benchmark categories.
- Using sentence starters helped students formulate their ideas to share with their partners.

**Example Responses, cont.**

**Question 2.** What did you notice about students' understanding of and challenges with comparing fractions with benchmark numbers?

- I noticed that students generally had an easier time when placing fractions that were closer to 1. One student noticed that the fraction  $\frac{9}{8}$  was 1 part higher than  $\frac{8}{8}$ , so they knew that the fraction was closer to 1.
- Sometimes comparing with the benchmark  $\frac{1}{2}$  was challenging. For the fraction  $\frac{6}{10}$ , students first thought it was closer to 1 but then realized that it was  $\frac{1}{10}$  more than  $\frac{5}{10}$ , which is equivalent to  $\frac{1}{2}$ .

**Question 3.** What are 1–2 ideas from the video that you would like to apply with your students?


- Having the fraction circles readily available to use with students was a helpful strategy both for helping students build understanding and for helping them talk about the fractions. I want to make sure to have fraction circles and fraction tiles available for students to use.
- I liked the questions the teacher asked to help students generalize about the characteristics of the fractions in each category. This seemed to support them without telling them too much.

**SLIDE 33**

**NOTES:** This slide and the two that follow provide a recap of the strategies. Keep this brief. Participants will delve into these strategies in Modules 1–5.

**SAY:** Let's do a short visual recap of the strategies in the routine. This photo shows the strategies of using and connecting multiple representations. There are fraction-circle manipulatives, drawings of fractions, and numeric fractions. The fractions were strategically selected to have denominators that can be modeled with manipulatives, which helps make them more accessible. Using benchmark numbers is another recommended strategy that helps build students' understanding of the relative size of fractions.

**Routine**  
**Recap of Strategies in Routine**



**Strategies**

- Use concrete, semi-concrete, and abstract representations.
- Connect representations.
- Use accessible fractions.
- Compare to benchmark numbers.


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 Sources: WWC Guide and Toolkit Authors

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### SLIDE 34

**SAY:** This photo shows some more strategies to support students in understanding and comparing fractions. The routine uses questions like the one in the example to help students generalize about the fractions in each category. It's also helpful for students to use representations to explain their ideas.

**Strategies: Build Understanding**



**Strategies**

- Ask focused questions to build mathematics understanding.
- Engage students in discussions.
- Use representations to explain ideas.

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### SLIDE 35

**SAY:** The routine also includes strategies to support student communication and the use of mathematical language. Students use sentence starters to share their ideas with partners.

**Strategies: Support Communication**



**Strategies**

- Use sentence starters to support students in communicating ideas.
- Use partner work.

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### SLIDE 36\*

**SAY:** Let's talk about what makes this a routine. It has a consistent sequence of three steps that can be repeated with different mathematics content. The routine has a structured process for students to sort the cards and explain their reasons. It uses consistent sentence starters to support student communication.

*Use animation to show the mathematics topics.*

During the course, we'll revisit this routine to sort unit fractions, equivalent fractions, number lines, and word problems. Each has a new card set that you can use with students.

**Routine Works for Different Mathematics Content**

**What makes this a routine?**

- Sequence of steps that can be repeated with different content.
- Structured process for sorting cards and explaining reasons.
- Consistent sentence starters to support student communication.

**In the course, we will use this routine for:**

- ✓ Fraction comparison
- Unit fractions
- Equivalent fractions
- Number lines
- Word problems

**Steps in the Routine**

1. Sort cards and explain reasons.
2. Discuss and generalize.
3. Wrap up and reflect.

Institute of Education Sciences | Introductory Module | Source: Toolkit Authors | 36

**SLIDE 37**

**SAY:** For each routine, the course provides resources to support teachers in implementing it with students. Here's a list of the resources for this card sorting routine that are provided in **Appendix A** of the Participant Workbook. There's a one-page overview of the routine and reproducible handouts with the fraction cards. You can revisit the video in the module's Online Component, which we will talk about in the next section.

Because this is the Introductory Module, you are not expected to use this routine, but you are certainly welcome to do so. In future modules, you will be expected to try that module's routine at least one time with your students and then share at a PLC session.

**Modules Provide Resources for Using the Routines**

**Resources in Participant Workbook, Appendix A**

- One-Page Overview of Routine.
- Fraction card sets.
- Sentence starters.
- Exit task.
- Answer key.

**Classroom Video** available from Online Component.

IES Institute of Education Sciences Introductory Module Source: Toolkit Authors 37

**Section 5. Course Orientation**

**Time:** The amount of time is different for the two session lengths:

- A.** 90-minute session: Spend about 8 minutes, including the walk-through (4–5 min.).
- B.** 120-minute session: Spend about 10 minutes, including the walk-through (5–7 min.).

**Slides:** 38–42

**Handout:** H5. Walk-Through of Online Component

**Suggestions Related to Time:**

- **If time is short**, shorten or skip the walk-through of the Online Component (Slide 42).
- **If you have additional time**, extend the time for the walk-through (Slide 42).

**SLIDE 38**

**SAY:** This section provides an overview of the course sequence and components. We'll introduce the Online Component to get ready to use it for the next module.

**Section 5**  
**Course Orientation**

IES Institute of Education Sciences Introductory Module 38

### SLIDE 39

**NOTES:** This slide shows an overview of the full course with the standard sequence of modules. If you are **not** using the full course or are using a different sequence, change the number of PD hours, and revise the slide to fit your plans.

**SAY:** Now, let me share some details about the course design and schedule. This course was designed to provide about 28 hours of PD over 6–7 months during one or two school years. Here is the sequence for the modules. This first module and the final module are shorter—they are each about 1 week long. The other modules are each about 5 weeks long to provide time for two PLC sessions and trying a routine with students.

**Course Design and Schedule**

- **Reflects research on effective PD:** Collaborative and sustained over time to support teachers' professional learning and use of strategies with students.
- Provides **about 28 hours of PD during one or two school years.\***
  - The sequence starts and ends with a short module (1 week each).
  - Modules 1–4 are each about 5 weeks long.

\*The number of PD hours will vary based on the implementation and district requirements.

### SLIDE 40\*

**NOTES:** The diagram is labeled for a 5-week time frame. Feel free to change these times to fit your implementation model.

**SAY:** This diagram shows how you will learn about the recommendations in the modules. Let's go through the sequence.

*Use animation to show a short description of each part.*

**Modules are Designed for Active Learning**

- Learn Individually** (Weeks 1-2):
  - Learn online: Videos, Readings, Activities
- Learn Together at PLC-A** (Week 3):
  - Discuss ideas, Try strategies, Prepare to use a routine.
- Use Routine with Students** (Weeks 3-4):
  - Use one or more times.
- Debrief Together at PLC-B** (Week 5):
  - Share experiences, Plan next steps.
- Reflect Individually** (Week 5):
  - Do short wrap-up activities.

### SLIDE 41

**SAY:** Each module has an Online Component that provides access to all of the resources. It is organized by tabs, which are numbered to show the sequence. This slide shows the tabs for the next module on mathematical language. The first three tabs, Intro, Explore-A, and Explore-B are all part of the online session. You will do a variety of activities to learn about the recommendation. You will work on these activities at your own pace during a 2-week period before PLC Session-A. The PLC-A tab has links to resources for this collaborative session. The Try-It! Routine tab has information and resources to help you implement a routine with students. The PLC-B tab has resources for debriefing your experiences with the routine. Lastly, the Wrap-Up tab has short activities to reflect on your learning and additional resources.

**Modules Have an Online Component**

- Provides online activities and all the resources for a module.
- Uses a tab menu. Tabs are numbered to show the sequence.
- Each 5-week module has an online component with these tabs:

1. Intro, 2. Explore-A, 3. Explore-B, 4. PLC-A, 5. Try It! Routine, 6. PLC-B, 7. Wrap-Up, Resources

Online Session: Self-paced, Asynchronous Activities (Intro, Explore-A, Explore-B)

Resources for PLC Sessions and Routine (PLC-A, Try It! Routine)

Reflection Activities (PLC-B)

List of Resources (Wrap-Up, Resources)

**SLIDE 42**

**NOTES:** Start by providing **5 minutes** for the walk-through and add more time if needed.

**SAY:** Please take out the handout titled **H5. Walk-Through of Online Component**. Follow the directions on that handout to get to know what is on each tab. You won't do the activities now—instead, you will spend about 5 minutes getting familiar with the layout and navigation. Please feel free to ask questions and request support. We want everyone to feel prepared to use the Online Component for the Mathematical Language Module.

**Walk-Through of Online Component**

Try the online component to prepare for the Mathematical Language Module.

- Use the handout, **Walk-Through of Online Component (H5)**.
  - Look at what's on each tab.
  - We will **not** spend time doing the online activities today.
- Work individually. Please feel free to ask questions and request support.

URL: <https://ies.ed.gov/ncee/rel/math-support-grades-3-6>

Institute of Education Sciences | Introductory Module | Source: Toolkit Authors | Handout: H5, page 7

**Section 6. Wrap-Up**

**Time:** The amount of time for the closing section is different for the two session lengths:

- A.** 1.5-hour/90-minute session: Spend about 5–7 minutes, including sharing ideas (~3 min.).
- B.** 2-hour/120-minute session: Spend about 10 minutes, including sharing ideas (~6 min.).

**Slides:** 43–47

**Handout:** H6. Course Checklist

**Suggestions Related to Time:**

- **Make sure to** go over the information about the tasks to complete before the next session (Slides 45–46). Allow time for participants to ask questions about the tasks.
- **If time is short**, you can shorten or skip having participants share ideas (Slide 44).

**SLIDE 43**

**SAY:** We have reached the closing section of today's session.

Section 6  
Wrap-Up

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## SLIDE 44

**NOTES:** You can choose different formats for sharing ideas: Partners, small groups, or whole group. An alternative is to have participants each write ideas on sticky notes and post them on chart papers. For virtual sessions, participants could post on a virtual board or use the chat.

**SAY:** Take a moment to reflect individually on today’s session: What’s one idea that you are taking away? What’s one topic that you are looking forward to learning about in the course?

*Give participants a little time to reflect.*

*Let’s share ideas. Facilitate the sharing of ideas for each question.*

**Wrap-Up: Reflect and Share**

**Reflect individually and then share ideas.**

- What’s **one idea** that you are taking away from today’s session?
- What’s **one topic** that you are looking forward to learning about in the course?

Institute of Education Sciences | Introductory Module | Source: Toolkit Authors | 41

## SLIDE 45

**NOTES:** This slide has a partial picture of the Course Checklist. If you will use a different checklist to fit your implementation model, replace this slide.

**SAY:** Please take out the handout titled **H6. Course Checklist**. We can use this checklist to keep track of tasks for the modules. You can check off this Kick-Off Session as completed. Next, you’ll work on the Wrap-Up tasks on tab 4 of the Online Component and then start the Mathematical Language Module. I’ll talk more about these tasks on the next slide.

**Course Checklist**

	Introductory Module	Dates
<input checked="" type="checkbox"/>	Kick-Off Session	
<input checked="" type="checkbox"/>	Wrap-Up (Complete tab 4 of Online Component)	
	<b>Module 1. Mathematical Language</b>	
<input type="checkbox"/>	Online Session (Complete tabs 1-3 of Online Component)	
<input type="checkbox"/>	PLC Session-A	
<input type="checkbox"/>	Try It!: Use Routine with Students	
<input type="checkbox"/>	PLC Session-B	
<input type="checkbox"/>	Wrap-Up (Complete tab 7 of Online Component)	

Institute of Education Sciences | Introductory Module | Source: Toolkit Authors | H6: Checklist, page 8 | 45

## SLIDE 46

**SAY:** Let’s go over the tasks that you are expected to complete before the next session. Complete the Introductory Module by doing a short reflection on the Wrap-Up tab. Start the Mathematical Language Module by working individually to complete the first three tabs: Intro, Explore-A and Explore-B. These online activities will take about 2 hours, and you have 2 weeks to complete them before we meet for PLC Session-A. Please be prepared to discuss the recommendation at the session on **[date and time]**. What are your questions about the tasks?

**Tasks to Complete Before the Next Session**

- Introductory Module:** Complete the Wrap-Up tab. **4. Wrap-Up**
- Start the Mathematical Language Module.**
  - Complete these 3 tabs for the Online Session: **1. Intro** **2. Explore-A** **3. Explore-B**
  - Estimated time: About 2 hours to complete the activities during a 2-week time span. Work at times of your choosing and at your own pace.

**Mathematical Language, PLC Session-A will meet on: [Add date and time]**

Institute of Education Sciences | Introductory Module | Source: Toolkit Authors | H6: Checklist, page 8 | 45

## SLIDE 47

**NOTES:** Close the session by thanking participants.

Thank You!

Thank you for your participation in today's Kick-off Session!

We look forward to learning together about the **Mathematical Language Recommendation at PLC Session-A on [Date/Time]**.

IES Institute of Education Sciences Introductory Module 47

## Additional slides in the deck:

**References**

Fuchs, L. S., Newman-Gonchar, R., Schumacher, R., Dougherty, B., Bucka, N., Karp, K. S., Woodward, J., Clarke, B., Jordan, N. C., Gersten, R., Jayanthi, M., Keating, B., and Morgan, S. (2021). *Assisting students struggling with mathematics: Intervention in the elementary grades* (WWC 2021006). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. Retrieved from <http://whatworks.ed.gov>.

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2022 Math Assessment.

**Photo Credits**

- Photo on slide 10 is the cover of the WWC Guide.
- All other photos are from videos filmed by Jim Galdos for the Mathematics Intervention Toolkit.

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**Website Information and Disclaimer**

Mathematics Intervention Toolkit Website:  
<https://ies.ed.gov/ncee/rel/math-support-grades-3-6>

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## Wrap-Up for the Module

Each module closes with an opportunity for participants to reflect on their learning. The Wrap-Up tab of the Online Component provides directions for the reflection activities. For this Introductory module, participants are asked to complete the handout titled **H7. Reflection** (shown below). They will list important ideas that they are taking away from the session. In addition, they will identify topics and questions that they are interested in learning about in the course. In subsequent modules, participants will complete a Self-Reflection Form about the focus recommendation.

**H7. Reflection**

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**Directions:** Reflect on your learning in this module by writing responses to the questions below.

**1.** What ideas are you taking away from Introductory Module? List **two important ideas** related to supporting students struggling with mathematics.

•

•

**2.** What **topics or questions** are you interested in learning about for each recommendation? List a few in the table.

Recommendation	What topics and questions would you like to learn about in the course?
Mathematical Language	
Representations	
Number Lines	
Word Problems	
Systematic Instruction	

### Facilitator's Tasks

Participants are expected to work independently on completing this handout (about 10-15 minutes). As the facilitator, your main task is communicating with participants.

- **Set a completion date.** Select a date about one week after the Kick-Off Session. It's helpful for participants to complete the handout shortly after the module ends so that it is still fresh in their minds.
- **Send reminders to participants.** Communicate with participants to remind and encourage them to complete the reflection handout.
- **Optional: Ask participants to share their Reflection handouts with you.** It's helpful to see what topics and questions participants are interested in learning about the recommendations. You can use this information to plan for subsequent modules by identifying ways to connect to participants' interests. If you plan to collect their Reflection handouts, let participants know in advance by adding this information to Slide 46 in the Kick-Off Session.

## References

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Fuchs, L. S., Newman-Gonchar, R., Schumacher, R., Dougherty, B., Bucka, N., Karp, K. S., Woodward, J., Clarke, B., Jordan, N. C., Gersten, R., Jayanthi, M., Keating, B., and Morgan, S. (2021). *Assisting students struggling with mathematics: Intervention in the elementary grades* (WWC 2021006). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. Retrieved from <http://whatworks.ed.gov/>.

U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2022 Math Assessment. Retrieved from <https://www.nationsreportcard.gov/highlights/mathematics/2022/>.