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Interweaving Equitable Participation and Deep Mathematics

Building Community in the
Elementary Classroom

CORWIN Mathematics

Facilitator's Guide

This facilitator's guide is intended for professional development facilitators and those who are reading this book together with colleagues. It offers recommendations for structuring meetings and online discussion, tips for facilitators, and workflow suggestions for each chapter. Before continuing to read this guide, we suggest you turn to the Introduction of the book and read the section titled **How to Use This Book**, which lays out the different kinds of activities readers engage in. This section of the Introduction also describes the **Notes Organizer**, provided to help readers record and keep organized their notes and reflections while reading the book.

Remember, this guide is meant to support your group's learning. You should feel free to make it your own and tailor it to the group you are facilitating.

General Format:

Most, though not all, chapter activities can be grouped into three parts:

- 1) **Do the Math** and **Watch the Video**, including reflection questions in those sections.
- 2) **Read and Reflect on Others' Comments** and **What Do You Want to Remember From This Chapter?**
- 3) **Taking a Next Step.**

We strongly recommend that the first part and discussion of the third part be done as a group while meeting together for 75- to 90-minute sessions. Many groups prefer to meet face-to-face, but it's important to consider all participants' availability and accessibility. Your sessions can be equally successful online via video conference.

Participants can read and record their reflections for the second part on their own after each group meeting. We recommend that they share these reflections through an online forum.

Tips for Facilitators

Prior to the First Meeting:

- Determine the kind of format you plan to use for working through the book with a group of colleagues. Are you going to have face-to-face meetings, or will you use video conferencing? If you plan to use an online forum for participants to share reflections between meetings, set up the forum and response groups.
- Schedule meeting dates and times.
- Determine the dates between sessions when participants should post their reflections and when they should respond to their colleagues' postings.

Prior to Each Meeting:

- Review the workflow for the chapter to be discussed—what participants need to do before meeting, what will happen at the meeting, and post-meeting activities.
- Remind participants of the premeeting assignment with enough notice for them to complete the reading.

During Each Meeting:

- Watch the time to make sure you can get to all the activities.
- At the end of the meeting, remind participants of how to complete the chapter: reading to be completed; responses to reflection questions; noting what they want to remember from the chapter; and *Taking a Next Step*. Remind participants of the timing for posting reflections and responding to colleagues' reflections.

Prior to the Last Meeting:

- Prepare an evaluation form.
- Select a closing activity.

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Chapter-by-Chapter Workflow Guide

This guide assumes a 75- to 90-minute meeting for each chapter, in person or as a video conference, and use of an online forum to discuss commentaries after each meeting. Refer to the book or the Notes Organizer for the specific activities and questions for each chapter.

Introduction: What Is a Mathematics Community?

Prior to Meeting:

Participants read the Preface and the Introduction.

Meeting Agenda:

- Review the goals and format for the book study or professional learning experience. Explain to participants the portion of each chapter they will cover in each meeting and what they are responsible for doing before and after meetings. Most (though not all) meetings will begin with participants sharing what they did in their own context in response to the “Taking the Next Step” suggestions. They will do some math together, and then they will view and discuss a video clip from a math lesson. After each of the meetings for Chapters 1 through 12, they will share reflections on the online forum. And they will respond individually to *Taking the Next Step*. (10 minutes)
- Reflect on the four features of a mathematics learning community. (25–30 minutes)
 - Small groups
 - Whole group
- Establish group norms: Give participants individual think time to name what they need from others to support their learning and what they need to remember to support others’ learning. As a group, list the norms participants identify. Make sure to specify norms for meetings and for online forum discussions. Clarify expectations for doing the homework. Since sessions are interactive, the learning of the group depends on everyone coming prepared. (25–30 minutes)
- *What Do You Want to Remember From This Chapter?* (15–20 minutes)
 - Small groups
 - Whole group

Part One Introduction: Every Voice Matters

Chapter 1: Creating Multiple Openings Into Engaging Mathematics

Prior to the Meeting:

Participants read Part One Introduction and Chapter 1.

Meeting Agenda:

- *Do the Math* (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Video 1.1, “Where Do You See the 3?” (45–50 minutes)



Video 1.1

“Where Do You See the 3?”

qrs.ly/fqfs4v8

- Introduction to the video (participants read individually)
- First viewing
- Small groups discuss first viewing, using the reflection questions: **For each video viewing in all the chapters, there may be more reflection questions than there is time to discuss deeply. Suggest that participants should first read the questions and select those that most interest them.**
- Whole group discusses first viewing
- Second viewing
- Small groups discuss second viewing, using the reflection questions
- Whole group discusses second viewing
- Review group norms. How did we do today? Is there anything we want to add or change? (10–15 minutes)
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write responses to the questions in the chapter. They share their reflections on the online forum and respond to reflections of their group. They also share what they want to remember from the chapter.

Participants respond individually to *Taking the Next Step*.

Chapter 2: Establishing Expectations and Structures for a Participatory Mathematics Community

Prior to the Meeting:

Participants read the entire chapter and write their responses to the questions in the box headed “Reflect on Your Practice.” In the Notes Organizer, these appear after the video reflection questions.

Meeting Agenda:

- *Taking a Next Step* from Chapter 1: Discuss in small groups (15 minutes)
- Watch and Discuss Video 2.1, Turn-and-Talk, Grade 1 and Video 2.2, Turn-and-Talk, Grade 3 (25–30 minutes)



Video 2.1

Turn-and-Talk, Grade 1

qrs.ly/ybfs4vf



Video 2.2

Turn-and-Talk, Grade 3

qrs.ly/aqfs4vh

- Introduction to the video (participants read individually)
- Watch the two clips
- Discuss the two clips in small groups, using the reflection questions
- Discuss the two clips in whole groups
- Reflect on Your Practice
 - Share and discuss reflections in small groups (15 minutes)
 - Discuss in whole group (10–15 minutes)
- *What Do You Want to Remember From This Chapter?* Discuss in small groups (10–15 minutes)
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants respond individually to *Taking a Next Step*, which they discuss with their response group on the online forum.

Chapter 3: Making Space and Time for Every Student

Prior to the Meeting:

Participants read the introduction to the chapter.

Meeting Agenda:

- Watch and Discuss Video 3.1, “I Mean Adding.” (15–20 minutes)



Video 3.1

“I Mean Adding”

qrs.ly/3ufs4vi

- Introduction to the video (participants read individually)
- Watch the clip once
- Discuss in small groups, using the reflection questions
- Discuss in whole group
- *Do the Math* (25–30 minutes)
 - Individual work
 - Discuss in pairs
- Watch and Discuss Video 3.2, “Division Is Like Reversed Multiplication.” (35–40 minutes)



Video 3.2

“Division Is Like Reversed Multiplication”

qrs.ly/grfs4vk

- Introduction to the video (participants read individually)
- Watch the video (first viewing)
- Small groups discuss first viewing, using the reflection questions
- Whole group discusses first viewing
- Watch the video (second viewing)
- Small groups discuss second viewing, using the reflection questions
- Whole group discusses second viewing
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants individually read the commentaries on the two clips, “I Mean Adding,” and “Division Is Like Reversed Multiplication,” and write their reflections. On the online forum, participants post and discuss their reflections on the commentaries and share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Chapter 4: Encouraging Persistence

Prior to the Meeting:

Participants read the introduction to Chapter 4.

Meeting Agenda:

- *Taking a Next Step* from Chapter 3: Discuss in small groups (15 minutes)
- *Do the Math* (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Video 4.1, “I Don’t Know How to Explain It” (45–50 minutes)



Video 4.1

“I Don’t Know How to Explain It”

qrs.ly/p1fs4vq

- Introduction to the video (participants read individually)
- First viewing
- Small groups discuss first viewing, using the reflection questions
- Whole group discusses first viewing
- Second viewing
- Small groups discuss second viewing, using the reflection questions
- Whole group discusses second viewing
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write responses to the questions in the chapter. They share their reflections on the online forum and respond to reflections of their group. They also share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Part Two Introduction: Collaboration Supports Student Agency

Chapter 5: Noticing Patterns as a Gateway to Building Mathematical Ideas Together

Prior to the Meeting:

Participants read Part Two Introduction, the Chapter 5 introduction, and *Watch the Video* up to Figure 5.1.

Meeting Agenda:

- *Taking a Next Step* from Chapter 4: Discuss in small groups (15 minutes)
- *Do the Math* (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Video 5.1, “I Want to Build on My Classmate’s Thinking” (45–50 minutes)



Video 5.1

“I Want to Build on My Classmate’s Thinking”

qrs.ly/exfs4xg

- Introduction to the video (participants read individually)
- First viewing
- Small groups discuss first viewing, using the reflection questions
- Whole group discusses first viewing
- Second viewing
- Small groups discuss second viewing, using the reflection questions
- Whole group discusses second viewing
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write responses to the questions in the chapter. They share their reflections on the online forum and respond to reflections of their group. They also share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Chapter 6: Collaboratively Building Toward a Conjecture

Prior to the Meeting:

Participants read the introduction to Chapter 6.

Meeting Agenda:

- *Taking a Next Step* from Chapter 5: Discuss in small groups (15 minutes)
- *Do the Math* (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Video 6.1, “What Happens to the Difference?” (45–50 minutes)



Video 6.1

“What Happens to the Difference?”

qrs.ly/wtfs4y4

- Introduction to the video (participants read individually)
- First viewing
- Small groups discuss first viewing, using the reflection questions
- Whole group discusses first viewing
- Second viewing
- Small groups discuss second viewing, using the reflection questions
- Whole group discusses second viewing
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write reflections in response to the questions. They share some of their reflections and comment on others’ reflections in an online forum. They also share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Chapter 7: Centering Students' Ideas to Formulate a Class Conjecture

Prior to the Meeting:

Participants read the introduction to the chapter and the section, *Emmanuel Fairley-Pittman: Profiles of Three Students*.

Meeting Agenda:

- *Taking a Next Step* from Chapter 6: Discuss in small groups (15 minutes)
- *Do the Math* (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Video 7.1, “She Wrote What It Meant” (45–50 minutes)



Video 7.1

“She Wrote What It Meant”

qrs.ly/9gfs4y7

- Introduction to the video (participants read individually)
- First viewing
- Small groups discuss first viewing, using the reflection questions
- Whole group discusses first viewing
- Second viewing
- Small groups discuss second viewing, using the reflection questions
- Whole group discusses second viewing
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write reflections in response to the questions. They post reflections and comment on others' reflections in an online forum. They also share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Part Three Introduction: Student-Created Representations Offer Anchors, Openings, and Depth

Chapter 8: Raising Student Voices Through Student-Created Representations

Prior to the Meeting:

Participants read the Part Three Introduction, the introduction to Chapter 8, and *What Makes an Effective Representation*.

Meeting Agenda:

- Taking a Next Step from Chapter 7: Discuss in small groups (15 minutes)
- *Do the Math, Part 1* (15–20 minutes)
 - Individual work
 - Discuss in pairs
- *Do the Math, Part 2* (20–25 minutes)
 - Individuals examine three student-created representations
 - Small groups discuss questions about the three representations
 - Discuss in whole group
- Watch and Discuss Video 8.1, “How Does This Show Addition?” (20–25 minutes)



Video 8.1

“How Does This Show Addition?”

qrs.ly/6gfs4ye

- Watch the clip
- Discuss in small groups, using the reflection questions
- Discuss in whole group
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the section, *Selecting Student Representations for Discussion*, and the commentary about student-created representations. Participants post and discuss their reflections on the commentaries and share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Chapter 9: Looking Across Representations

Prior to the Meeting:

Participants read the introduction to Chapter 9.

Meeting Agenda:

- *Taking a Next Step* from Chapter 8: Discuss in small groups (15 minutes)
- *Do the Math* (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Videos 9.1, 9.2, and 9.3, “Where Is Ms. Schooler’s Additional Bottle Cap?,” Parts 1, 2, and 3 (45–50 minutes)
 - Introduction to the video (participants read individually)
 - View Video 9.1



Video 9.1

“Where Is Ms. Schooler’s Additional Bottle Cap?” Part 1
qrs.ly/gufs4yf

- Small groups discuss the clip, using the reflection questions
- View Video 9.2



Video 9.2

“Where Is Ms. Schooler’s Additional Bottle Cap?” Part 2
qrs.ly/jhfs4yi

- Small groups discuss the clip, using the reflection questions
- Whole group discusses these two clips
- View Video 9.3



Video 9.3

“Where Is Ms. Schooler’s Additional Bottle Cap?” Part 3
qrs.ly/xtrfs4yq

- Small groups discuss this clip, using the reflection questions
- Whole group discusses this clip
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write reflections in response to the questions. They post reflections and comment on others' reflections in an online forum. They also share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

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Chapter 10: Facilitating Critique and Revision of Student-Created Representations

Prior to the Meeting:

Participants read the introduction to Chapter 10.

Meeting Agenda:

- *Taking a Next Step* from Chapter 9: Discuss in small groups (15 minutes)
- *Do the Math* (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Video 10.1, “Could I Change My Writing?” (45–50 minutes)



Video 10.1

“Could I Change My Writing?”

qrs.ly/hofs4yr

- Introduction to the video (participants read individually)
 - First viewing
 - Small groups discuss first viewing, using the reflection questions
 - Whole group discusses first viewing
 - Second viewing
 - Small groups discuss second viewing, using the reflection questions
 - Whole group discusses second viewing
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write reflections in response to the questions. They post reflections and comment on others’ reflections in an online forum. They also share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Part Four Introduction: Students Are Initiators and Advocates for Their Own Learning

Chapter 11: Supporting Students to Take Charge of Their Own Learning

Prior to the Meeting:

Participants read Part Four Introduction and the introduction to Chapter 11.

Meeting Agenda:

- *Taking a Next Step* from Chapter 10: Discuss in small groups (15 minutes)
- *Do the Math* (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Video 11.1, “I’m Thinking of Ideas” (45–50 minutes)



Video 11.1

“I’m Thinking of Ideas”

qrs.ly/mnfs4yz

- Introduction to the video (participants read individually)
 - First viewing
 - Small groups discuss first viewing, using the reflection questions
 - Whole group discusses first viewing
 - Second viewing
 - Small groups discuss second viewing, using the reflection questions
 - Whole group discusses second viewing
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write reflections in response to the questions. They post reflections and comment on others’ reflections in an online forum. They also share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Chapter 12: Normalizing Confusion

Prior to the Meeting:

Participants read the introduction to Chapter 12.

Meeting Agenda:

- *Taking a Next Step* from Chapter 10: Discuss in small groups (15 minutes)
- Do the Math (20–25 minutes)
 - Individual work time
 - Pairs share
 - Whole-group
- Watch and Discuss Video 12.1, *Fatima’s Question* (45–50 minutes) (Since the video clip shows an event at the end of the lesson shown in Chapter 10, consider whether you want to make time to show the video from Chapter 10 again.)



Video 12.1

Fatima’s Question

qrs.ly/97fs4z1



Video 10.1

“Could I Change My Writing?”

qrs.ly/hofs4yr

- Introduction to the video (participants read individually)
- First viewing
- Small groups discuss first viewing, using the reflection questions
- Whole group discusses first viewing
- Second viewing
- Small groups discuss second viewing, using the reflection questions
- Whole group discusses second viewing
- Remind participants what they need to do before the next group meeting.

After the Meeting:

Participants read the rest of the chapter and write reflections in response to the questions. They post reflections and comment on others' reflections in an online forum. They also share what they want to remember from the chapter.

Participants respond individually to *Taking a Next Step*.

Conclusion: What to Do Next

Prior to the Meeting:

Participants read the entire chapter.

As a group:

- *Taking a Next Step* from Chapter 12: Discuss in small groups (15 minutes)
- *Taking a Next Step* from the Conclusion (35–40 minutes)
 - Individual writing time
 - Small group discussion
 - Whole group discussion
- Course evaluation (15–20 minutes)
- Closing (10–15 minutes)

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