Introduction

Session Goals

Participants will:

- learn about Mixing in Math (MiM) resources and their value for libraries;
- become familiar with several MiM activities;
- plan how they will use MiM.

Before You Begin

☐ Select MiM “opening activities” that participants will do as they arrive (see “Materials”).
☐ Create a packet for each participant (see “Materials”).
☐ Review PowerPoint that accompanies this session. As needed, edit the PowerPoint to reflect specifics of your session (see PowerPoint notes).
☐ Gather quotes, photos or children’s work from your own use of MiM to share (optional).
☐ Plan for a follow-up meeting to check in about MiM (optional).
☐ At least 15 minutes before the session begins, set up the opening activities, related children’s books, any quotes, photos, etc. you have gathered, and the PowerPoint.

A. Opening Activities and Introduction (15-25 minutes)

1. Explore opening activities. As participants arrive, invite them to do the activities set up around the room. Allow 10 minutes for everyone to try some of the activities.
2. Overview: What is Mixing in Math?

- Call the group back together. Introduce yourself and welcome participants.
- Review the overall session goal: to learn about Mixing in Math (MiM). (Slide 1)

**Workshop Goals**

By the end of this session you will…
- understand how Mixing in Math (MiM) can enhance your work with children and families
- be familiar with several MiM activities
- have a plan for how you will use MiM

- Explain the session plan. (Slide 2)

**What’s on the agenda?**

- Background: What is Mixing in Math?
- Introductions
- Doing MiM activities
- Planning for using MiM

- Explain what MiM is. (Slide 3)

**Mixing in Math...**

- is a free set of activities and resources
- adds math to story times, displays, and more
- includes Spanish versions
- is designed for children in grades K-6 and their families

http://mixinginmath.terc.edu

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Notes for Slide 3:

Explain for each main point.

- MiM includes a wide range of resources, including story-time activities, projects, and games, as well as posters, calendars, and activity sheets. Many of the activities are designed for children to do on their own, for instance, when they're waiting around with nothing to do.
- MiM adds math to what librarians already do. You can use Mixing in Math activities as part of story and craft programs, family events, or summer reading programs. Some MiM activities work well in a traditional "quiet" library setting; others involve snacks, projects, and some physical activity.
- Some of the MiM activities and resources are available in Spanish. More will be translated in the coming year.
- MiM is available for free downloading at the URL given.
Introduction

• Review why MiM is a good fit for libraries. (Slide 4)

Notes for Slide 4:
• MiM helps children build the skills they need to be informed citizens. They develop an enthusiasm for math and an understanding of how it fits in with everyday life.
• MiM is easy to use as part of any theme—holidays, fairy tales, seasons, animals, and more.
• MiM was developed with extensive testing in urban, rural, and suburban libraries across the US. MiM was created at TERC, a non-profit organization in Cambridge, MA, with funding from the National Science Foundation.
• No special math background is needed. Librarians, volunteers, and teens can lead MiM activities. (OPTIONAL, if you are not using the next slide: If you can figure out what time to get up in order to get to work at 9am, you can use Mixing in Math.)
• Supply your own reason and give an example of how MiM fits your mission.

Notes for Slide 5:
• MiM is aligned to math standards used in states and districts throughout the US.

Notes for Slide 6:
Ask participants to figure out how they’d answer each question, then turn to someone else and explain how they arrived at the answer.
Gather a few strategies that participants have used.
• Possible strategies: adding 7’s, adding multiples of 7, working forwards or backwards from a familiar date (e.g., Halloween, Thanksgiving, Veteran’s Day.)
• Estimating how many times higher the ceiling is than your own height, how many feet above a door.
• Explain that these kinds of strategies are the “everyday math knowledge” needed to use Mixing in Math.
If participants need a hint with the first question, show them the calendar pages. (Slide 7)

- Optional, if time permits. Show the Whale Poster and sample quotes. (Slide 8)

**Notes for Slide 8:**

Explain that the box in the lower left is a MiM poster that may libraries have used in conjunction with animal, nature, and ocean themes.

The quotes are from children in the library. The posters sparked children to think about what size, making size comparisons, and what math is. Children also dove into books on natural science to investigate the question.

3. *Debrief opening activities.* Ask participants to briefly introduce themselves. As part of the introduction, ask them which opener they found most interesting. (Slide 9)
Then, spend a few minutes reviewing at least two of the openers:
- Quick Questions. (Slide 10)
- Mystery Jars. (Slide 11)
- As time permits, discuss other activities set up around the room and talk through any quotes or photos you have posted.

B. How Many in a Minute? (15-20 minutes)

1. Lead the activity. (Turn off projector).
Start with the variation at the bottom of the page, Estimate a Minute. Then ask:

Did a minute feel longer or shorter than you expected?

Lead the activity as described, steps 1-3, with participants drawing stars or writing their names. Discuss:

How did you count and keep track of the stars? Did anyone count by 5’s? 10’s?

What would you do differently next time to make it easier to count?

- Repeat the activity, as described in Step 4.

2. Ask: What math came up?
If no one mentions estimating time, counting by 1’s, 5’s, and 10’s, or comparing amounts, bring it up yourself.

3. Explain that How Many in a Minute, like most MiM activities, can be adapted for a wide range of themes.

Ask participants for an example of an upcoming program, and then brainstorm things that they could do in a minute that fit the theme. For instance:

How many times in a minute can you...

<table>
<thead>
<tr>
<th>Poetry</th>
<th>Mother’s Day</th>
<th>Nature</th>
<th>For a quick stretch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Say a tongue twister</td>
<td>String beads for a necklace</td>
<td>Cut out star shapes</td>
<td>Jump</td>
</tr>
<tr>
<td>Repeat a set of movements: snap fingers, stamp your foot, clap</td>
<td>Make paper chain links for decorations</td>
<td>Draw fish</td>
<td>Do arm circles</td>
</tr>
</tbody>
</table>
Explain that some MiM activities like *How Many in a Minute?* can be used almost any time throughout a program—to get the wiggles out before starting a story or art project, or while waiting for a special program to start. Others are longer and can form the basis for a half hour or hour program.

C. Overview of the Materials (5 minutes)

1. Refer participants to the packet of MiM activities. Ask them to turn to *How Many in a Minute?*, the activity they just did as a group. (Slide 12)

   - Grade range. Most MiM activities can be used with the entire K-6 grade range. They include “easy” variations for the lower end of the range and “harder” ones for the upper end.
   - Length of time. Activities are either 10 minutes or less, 10-20 minutes, or 20 -60 minutes.
   - Minimum participants. Most activities work with any number of participants. Some, like Quick Questions, need several participants for gathering data.
   - Suggested group size. Some activities are designed to be done in a group. HMiM everyone keeps a count.
   - Book recommendations These are just examples, intended to emphasize the variety of books that fit with MiM—not just math books. What fiction books could go along with *How Many in a Minute?* Non-fiction books?
   - Talk about. Ask these questions to draw out the math.
   - Math background. Look for the page of math background with more ideas for adjusting the activity for different ages.

2. Other kinds of activities. Point out Counting Books, which could be used for the “craft” portion of a story/craft program, and *Look Around*, which works well as a family or self-directed activity. (Slide 13)

   - Children become familiar with the library as they count and measure.

3. Note other formats included in the packet: posters, games, and calendars—all of these children can do on their own. They don’t need to be part of a program. Let participants know these are all on the MiM website; some are available in Spanish.

4. Thematic guides. MiM includes some suggestions for adapting activities to several common library themes.
D. Theme Planning (15 minutes)

Note: For the rest of the session, participants may wish to work with someone from their own library or region. (Slide 14)

1. Ask pairs to come up a theme that they use annually as the basis for book displays and programs (e.g., Halloween, or animals).

They use their packets of activities or computers showing the MiM website to select three MiM activities that they can adapt to their chosen theme. At least one activity should be appropriate for a story/craft program. They may also choose books.

2. After 10 minutes, call the group back together. Ask pairs to briefly tell which activities they chose and how they fit with the theme. As time permits, ask for ideas on books they might read at story time that fit the theme.

Note: If time permits, ask if any pairs would like to lead one of the shorter activities they’ve chosen.

E. Summary and Next Steps (10 minutes)

1. Review benefits of using MiM. (Slide 15)

Notes for Slide 15:

Make these points:
- For some librarians, numeracy for K-6 is totally new; for others, MiM is a new way to offer numeracy activities.
- Children can use many of the MiM activities by themselves: it doesn’t need to be part of a program.
- Parents enjoy knowing their children are coming to appreciate math and learn new skills. The activities also work for family programs or take-homes for parents.
- Librarians have found that adding a MiM activity to a book display makes the books fly off the shelves.
- If time permits, ask participants for a word or two that describes MiM.
2. If you have input into how often participants will be using MiM, review expectations for MiM use (e.g., one activity per month) and reporting (e.g., submitting logs).

3. Distribute the Action Plan handout. (Slide 16). Give participants a few minutes to start a plan for using at least three MiM activities they’ve seen during the session.

4. If you will be meeting again soon, choose one or two participants to read through, try out, and lead a certain activity for the next group meeting.

5. Let participants know how they can reach you if they have questions. Remind them where to find MiM online (the website address is at the bottom of every activity).

6. Use the remaining time to answer any questions.

7. Review Mixing in Math contact information (Slide 17).

8. Hand out a session evaluation form. Optional: Use the MiM Reflection form. After participants have filled it in, collect it.

9. Display thank-you slide. (Slide 18.)

Notes for Slide 16:
Action steps might be sharing the information with a peer, putting a MiM activity on the calendar, reviewing the materials online, copying and setting out calendars.

Hard questions?
If there are questions you can’t answer, please contact Marlene Kliman at TERC, marlene_kliman@terc.edu.