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**TIPS4RM**

Targeted Implementation  
and Planning Supports for  
Revised Mathematics

# Mathematical Processes: Professional Learning Series



Ontario

# Mathematical Processes: Professional Learning Series

## Overview

Three different Professional Learning Series, summarized below, are connected to the twenty types of professional learning opportunities outlined in *Student Success Professional Learning Actions and Interactions*.

### Series 1

This comprehensive series of five sessions helps teachers:

- develop their awareness of the Mathematical Processes
- build on their knowledge of the Processes
- translate this knowledge into practice
- practise their learning
- reflect on their learning and practice

During the five sessions, teachers:

- develop instructional materials
- implement curriculum revisions with respect to the Mathematical Processes
- engage in case discussions
- are involved in a form of Lesson Study
- work as a team to coach and be coached to improve practice
- are part of a study group focusing on the Mathematical Processes
- engage in e-learning as they access videos and lessons on the Internet
- have face-to-face professional learning with a facilitator and with peers
- implement the instructional strategies in their classrooms

### Series 2

This seven session series helps teachers:

- develop their awareness of the Mathematical Processes
- build on their knowledge of the Processes
- practise their learning
- reflect on their learning and practice

During the seven sessions, teachers:

- implement curriculum revisions with respect to the Mathematical Processes
- work as a team to coach and be coached to improve practice
- are part of a study group focusing on the Mathematical Processes
- engage in e-learning as they access videos and lessons on the Internet
- have face-to-face professional learning with a facilitator and with peers
- implement the instructional strategies in their classrooms

### Series 3

This six session e-learning series helps teachers:

- develop their awareness of the Mathematical Processes
- build on their knowledge of the Processes
- translate this knowledge into practice (optional)
- practise their learning
- reflect on their learning and practice

Teachers who participate in these six sessions:

- develop instructional materials (optional)
- implement curriculum revisions with respect to the Mathematical Processes
- reflect on a case study
- engage in Lesson Study – modified personal reflection on practice
- engage in e-learning as they access videos and lessons on the Internet

Sessions are intended to be spaced throughout several weeks or a semester.

Sessions in each series call for different commitments of time as indicated in the session outlines.

## Series 1 – Session 1: Building Awareness and Knowledge of the Mathematical Processes

### Professional Learning Goals

- Develop awareness of the Mathematical Processes.
- Build knowledge of the seven Mathematical Processes.
- Develop awareness of how Communicating and Problem Solving are connected to the other five Mathematical Processes.

### Materials

- TIPS4RM Mathematical Processes package
- Mathematical Processes video
- highlighters
- chart paper

### Assessment Opportunities

**Minds On ...**

**20 minutes**

#### Whole Group → Observing Video

Present the Mathematical Processes video to the participants.

Distribute the TIPS4RM Mathematical Processes Package.

#### Individual → Reading

Participants read from the TIPS4RM Mathematical Processes Package, Problem Solving p. 2 and Communicating p. 10.

**Action!**

**50 minutes**

#### Jigsaw → Reading and Sharing

Assign each participant to a “home group” of five people. Assign each member of the home group one of the five Mathematical Processes (Reasoning and Proving; Reflecting; Selecting Tools and Computational Strategies; Connecting; and Representing) to form an “expert group.” In their expert groups, participants, individually read the information for the process assigned to them. As a group, they select and highlight two pieces of information from the four sub-sections, (e.g., Role of Students, Instructional Strategies) that are most relevant to share with their home group.

Convene home groups. Each participant reads the introduction for their process and shares the identified information from each category.

**Consolidate Debrief**

**30 minutes**

#### Expert Group → Discussion and Reporting

Reconvene into expert groups. Groups discuss and summarize how the mathematical process connects to Problem Solving and Communicating, and prepare to report to the whole group.

Each group reports how communicating and problem solving connect to the mathematical processes they were assigned.

#### Home Activity or Further Classroom Consolidation

Read the assigned lesson and determine which mathematical processes the lesson tends to support.

Mathematical Processes Package:

- Reasoning & Proving p. 3–4
- Reflecting p. 5
- Selecting Tools & Computational Strategies p. 6–7
- Connecting p. 8
- Representing p. 9

During individual reading participants consider how the process connects to the processes of Problem Solving and Communicating.

Suggested Lessons:

- Grade 7 Unit 2 Day 1
- Grade 8 Unit 5 Day 1
- Grade 9 Applied Unit 1 Day 3
- Grade 10 Applied Unit 2 Day 4

## Series 1 – Session 2: Translating Knowledge into Practice

### Professional Learning Goals

- Build knowledge of five Mathematical Processes. (Reasoning and Proving, Reflecting, Selecting Tools and Computational Strategies, Connecting, Representing)
- Translate knowledge of a mathematical process into practice by making adjustments to a TIPS4RM lesson.

### Materials

- TIPS4RM Mathematical Processes package
- envelopes
- BLM 1.2.1, 1.2.2

### Assessment Opportunities

#### Minds On ...

10 minutes

#### Small Group → Matching Game

Provide each group with an envelope containing phrases from the four sub-sections of the five Mathematical Processes (BLM 1.2.1 Facilitator copy). Participants match the phrase with the math process and sub-section using BLM 1.2.2. Participants check their answers with the Mathematical Processes Package.

#### Action!

15 minutes

#### Whole Group → Discussion

Discuss the lesson assigned from the last session's home activity, identifying the Mathematical Processes that the students will experience.

#### Small Group → Lesson Engagement

Participants engage in the TIPS4RM lesson/activity.

#### Consolidate Debrief

10 minutes

#### Whole Group → Discussion

Pose the following questions to the participants:

- After experiencing the lesson activity do you still believe the same Mathematical Processes are being emphasized as you previously thought? Why or why not?
- Which Mathematical Process do you believe is prevalent?"

#### Home Activity or Further Classroom Consolidation

Develop one question and one instructional strategy to incorporate into the lesson discussed to further emphasize the Mathematical Process focus.

Provide materials for TIPS4RM lesson/activity.

Responses will vary.

## BLM 1.2.1: Mathematical Processes Matching Activity (Facilitator)

### Instructions

Photocopy one per group. Cut out the phrases and place in an envelope. Provide an envelope of phrases and a blank template to each group. Keep the original for answer verification.

<b>Reasoning and Proving</b>	<b>Reflecting</b>	<b>Selecting Tools and Computational Strategies</b>	<b>Connecting</b>	<b>Representing</b>
<b>Role of Students</b>				
Combine given information with intuition to make a reasoned guess when prompted.	Consider the reasonableness of their answer.	Use manipulatives and/or technology to develop understanding of new concepts, for communicating, or for performing certain tasks.	Make connections between new and prior knowledge to make sense of what they are learning.	Understand that various representations can be used to appropriately represent the same situation
<b>Instructional Strategies</b>				
Ask questions that require students to hypothesize and make conjectures, e.g., What if...?	Encourage students to ask themselves "What-if" questions.	Model different computational strategies, and explain why you choose to use them.	Integrate strands, explicitly demonstrating and reinforcing connections.	Introduce new concepts using concrete materials
<b>Sample Questions</b>				
In what cases might our conclusion not be true?	How does this compare to....?	What estimation strategy did you use? Was your result sufficiently accurate for the question?	When could this mathematical concept or procedure be used in daily life?	How could you represent this idea algebraically? Graphically?
<b>Sample Feedback</b>				
Present your solution, showing all the steps so someone else will understand your thinking.	I can follow your thinking up to here. How can you help me understand your next ideas?	Share your solution with someone who has used a different tool, and discuss the merits of each.	How can you relate your understanding of... to this problem?	In what other ways can you represent this problem?

## BLM 1.2.2: Mathematical Processes Matching Activity

Place each phrase from the envelope in the correct space.

**Note:** There is one phrase per space.

Reasoning and Proving	Reflecting	Selecting Tools and Computational Strategies	Connecting	Representing
<b>Role of Students</b>				
<b>Instructional Strategies</b>				
<b>Sample Questions</b>				
<b>Sample Feedback</b>				

## Series 1 – Session 3: Modelling with the Reasoning and Proving Mathematical Process

### Professional Learning Goals

- Build knowledge of the Mathematical Process Reasoning and Proving to deepen understanding.
- Translate knowledge of reasoning and proving into practice by engaging and reflecting on a lesson adjusted to focus on this process.

### Materials

- TIPS4RM:  
Grade 9 Applied  
Unit 4 Day 1,  
adjusted lesson  
and related  
handouts,
- Mathematical  
Processes  
Package
- 3 Videos:
  - Mathematical  
Process on  
Reasoning and  
Proving
  - Related Teacher  
Discussion
  - Classroom Lesson

### Assessment Opportunities

#### **Minds On ...**

**30 minutes**

#### Whole Group → View Video

Participants view the Reasoning and Proving video and corresponding teacher dialogue video on adjusting TIPS4RM, Grade 9 Applied, Unit 4 Day 1.

Provide participants with the Reasoning and Proving section from TIPS4RM Mathematical Process package, pp. 3 and 4

#### **Action!**

**30 minutes**

#### Groups of 4 → Lesson Engagement

Participants engage in the adjusted lesson, keeping in mind that the lesson is intended to focus on reasoning and proving.

#### Whole Group → Discussion

Identify aspects of the lesson that emphasize reasoning and proving. Refer to the TIPS4RM Mathematical Process package, Reasoning and Proving.

#### **Consolidate Debrief**

**30 minutes**

#### Whole Group → Video and Discussion

View video of lesson being taught to a class.

Lead a discussion on how the teacher focussed the students' attention on the reasoning and proving process, and in what ways the lesson supported students' development and demonstration of their reasoning and proving skills.

#### Home Activity or Further Classroom Consolidation

Watch video of teachers as they debrief the lesson. Be prepared to discuss your observations.

## Series 1 – Session 4: Adjusting a Lesson

### Professional Learning Goals

- Build knowledge of the Mathematical Process Reasoning and Proving to deepen understanding.
- Translate knowledge of Reasoning and Proving into practice by discussing the video of the adjusted lesson that is focused on this process in action.
- Build knowledge of another Mathematical Process to deepen understanding and translate knowledge by adjusting a lesson.
- Implement knowledge by teaching the adjusted lesson.

### Materials

- TIPS4RM lesson packages,
- Mathematical Processes Package,
- videos
- electronic file for working on adjusted lesson

### Assessment Opportunities

**Minds On ...**

**10 minutes**

#### Groups of 3 → Discussion

Groups discuss their observations of teachers debriefing the lesson. (See [Home Activity](#) for Session 3.)

Provide TIPS4RM lesson packages and Mathematical Process package.

**Action!**

**30 minutes**

#### Groups of 3 → Select Lesson and Mathematical Process

Groups review TIPS4RM lessons and select one lesson to adjust that will focus on the mathematical process of their choice. The group watches the corresponding Mathematical Process video and reviews the process as described in the TIPS4RM Mathematical Processes package.

#### Differentiated Instruction:

Each group selects from the lesson package for their grade.

#### Groups of 3 → Adjust lesson

Provide each group with the electronic file on which to do their work. Groups adjust the selected lesson to focus on the Mathematical Process of their choice, using the adjusted TIPS4RM, Grade 9 Applied, Unit 4 Day 1 as a model.

Provide guidance as required by directing participants to the process they selected from the Mathematical Process package. Ensure that each of the categories is considered (e.g., Role of Student, Instructional Strategies). They should include additional or adjusted student worksheets.

Ask groups to select a lesson that they could teach in their classroom in the near future to prepare for the [Home Activity](#) and Session 5 of the Professional Learning Study Group.

**Consolidate Debrief**

**30 minutes**

#### Whole Group → Sharing

Each group reports to the whole group identifying the lesson they chose and the Mathematical Process they selected. Each group briefly describes the adjustments made to the lesson.

#### Differentiated Activity:

Rather than doing a complete lesson, groups could incorporate questions, instructional strategies, and sample feedback into a lesson.

#### Home Activity or Further Classroom Consolidation

Implement the adjusted lesson with your class. Reflect on strengths of the lesson, adjustments made during lesson, and what additional strategies could help the students develop their skills with that particular Mathematical Process.

Alternatively, one teacher could teach the lessons as the others observe. Teachers would meet afterwards, debrief, and adjust the lesson, and then another teacher would teach it as the others observed.

## Series 1 – Session 5: Reflecting and Sharing of the Adjusted Lesson

### Professional Learning Goals

- Reflect on their practice in terms of the effectiveness of two lessons.
- Translate reflection into practice by sharing their reflection and further adjusting the lesson.
- Implement knowledge by teaching an adjusted lesson.

### Materials

- blank placemat template

### Assessment Opportunities

#### **Minds On ...**

15 minutes

#### Groups of 3 → Placemat

Each group member lists as many items as they can in 5 minutes that identifies a lesson as “effective.” The group members consolidate their thinking in the centre of the place mat. Groups take turns identifying an item from the centre of their placemat.

*Think Literacy  
Cross Curricular  
Approaches, p. 163*

#### **Action!**

30 minutes

#### Groups of 3 → Discussion

Each group selects a recorder to take notes of the discussion. Groups discuss their reflection of the lesson taught (See [Home Activity](#) for Session 4). They include what went well and what requires further improvement. In particular, groups should reflect on how effective the lesson was generally, and if the mathematical goals and process goals were achieved.

#### Groups of 3 → Final lesson adjustment

Using the notes from the discussion, the group members adjust their lesson further.

#### **Consolidate Debrief**

30 minutes

#### Whole Group → Sharing

Each group shares verbally their final, adjusted lesson; including the Mathematical Process focus, and their rationale for the final adjustments.

#### Individual → Lesson Selection

Each person selects a final adjusted lesson from those presented to teach to their class.

Participants share files and email addresses for completing the [Home Activity](#).

#### [Home Activity or Further Classroom Consolidation](#)

Deliver the newly selected final, adjusted lesson to your class. Reflect on its effectiveness, and share your reflection with the authors via email. Include electronic files of further changes you recommend.

## Series 2 – Session 1: Building Awareness and Knowledge of the Mathematical Processes

### Professional Learning Goals

- Develop awareness of the Mathematical Processes.
- Build knowledge of the seven Mathematical Processes.
- Develop awareness of how Communicating and Problem Solving are connected to the other five Mathematical Processes.

### Materials

- TIPS4RM Mathematical Processes package
- Mathematical Processes video
- highlighters
- chart paper

### Assessment Opportunities

#### Minds On ...

20 minutes

#### Whole Group → Observing Video

Present the Mathematical Processes video to the participants.

Distribute the TIPS4RM Mathematical Processes Package.

#### Individual → Reading

Participants read from the TIPS4RM Mathematical Processes Package, Problem Solving p. 2 and Communicating p. 10.

#### Action!

50 minutes

#### Jigsaw → Reading and Sharing

Assign each participant to a “home group” of five people. Assign each member of the home group one of the other five Mathematical Processes (Reasoning and Proving; Reflecting; Selecting Tools and Computational Strategies; Connecting; and Representing) to form an “expert group.” In their expert groups, participants, individually read the information for the process assigned to them. As a group, they select and highlight two pieces of information from the four sub-sections, (e.g., Role of Students, Instructional Strategies) that are most relevant to share with their home group.

Convene home groups. Each participant reads the introduction for their process and shares the identified information from each category.

#### Consolidate Debrief

30 minutes

#### Expert Group → Discussion and Reporting

Reconvene into expert groups. Groups discuss and summarize how the mathematical process connects to Problem Solving and Communicating, and prepare to report to the whole group.

Each group reports how communicating and problem solving connect to the mathematical processes they were assigned.

#### Home Activity or Further Classroom Consolidation

Read the assigned lesson and determine which mathematical processes the lesson supports.

Mathematical Processes package:

- Reasoning & Proving p. 3–4
- Reflecting p. 5
- Selecting Tools & Computational Strategies p. 6–7
- Connecting p. 8
- Representing p. 9

During individual reading, participants consider how the process connects to the processes of Problem Solving and Communicating.

Suggested Lessons:

- Grade 7 Unit 2 Day 1
- Grade 8 Unit 5 Day 1
- Grade 9 Applied Unit 1 Day 3
- Grade 10 Applied Unit 2 Day 4

## Series 2 – Session 2: Translating Knowledge into Practice

### Professional Learning Goals

- Build knowledge of five Mathematical Processes. (Reasoning and Proving, Reflecting, Selecting Tools and Computational Strategies, Connecting, Representing)
- Translate knowledge of a mathematical process into practice by making slight adjustments to a TIPS4RM lesson.

### Materials

- TIPS4RM Mathematical Processes package
- envelopes
- BLM 1.2.1, 1.2.2

### Assessment Opportunities

#### Minds On ...

10 minutes

#### Small Group → Matching Game

Provide each group with an envelope containing phrases from the four sub-sections of the five Mathematical Processes (BLM 1.2.1 Facilitator copy).

Participants match the phrase with the math process and sub-section using BLM 1.2.2. Participants check their answers with the Mathematical Processes Package.

#### Action!

15 minutes

#### Whole Group → Discussion

Discuss the lesson assigned from the last session's home activity, identifying the Mathematical Processes that the students will experience.

#### Small Group → Lesson Engagement

Participants engage in the TIPS4RM lesson/activity.

#### Consolidate Debrief

10 minutes

#### Whole Group → Discussion

Pose the following questions to the participants:

- After experiencing the lesson activity do you still believe the same Mathematical Processes are being emphasized as you previously thought? Why or why not?
- Which Mathematical Process do you believe is prevalent?"

#### Home Activity or Further Classroom Consolidation

Develop one question and one instructional strategy to incorporate into the lesson discussed to further emphasize the Mathematical Process focus.

Provide materials for TIPS4RM lesson/activity.

Responses will vary.

## BLM 2.2.1: Mathematical Processes Matching Activity (Facilitator)

### Instructions

Photocopy one per group. Cut out the phrases and place in an envelope. Provide an envelope of phrases and a blank template to each group. Keep the original for answer verification.

<b>Reasoning and Proving</b>	<b>Reflecting</b>	<b>Selecting Tools and Computational Strategies</b>	<b>Connecting</b>	<b>Representing</b>
<b>Role of Students</b>				
Combine given information with intuition to make a reasoned guess when prompted.	Consider the reasonableness of their answer.	Use manipulatives and/or technology to develop understanding of new concepts, for communicating, or for performing certain tasks.	Make connections between new and prior knowledge to make sense of what they are learning.	Understand that various representations can be used to appropriately represent the same situation
<b>Instructional Strategies</b>				
Ask questions that require students to hypothesize and make conjectures, e.g., What if...?	Encourage students to ask themselves 'What-if' questions.	Model different computational strategies, and explain why you choose to use them.	Integrate strands, explicitly demonstrating and reinforcing connections.	Introduce new concepts using concrete materials
<b>Sample Questions</b>				
In what cases might our conclusion not be true?	How does this compare to...?	What estimation strategy did you use? Was your result sufficiently accurate for the question?	When could this mathematical concept or procedure be used in daily life?	How could you represent this idea algebraically? Graphically?
<b>Sample Feedback</b>				
Present your solution, showing all the steps so someone else will understand your thinking.	I can follow your thinking up to here. How can you help me understand your next ideas?	Share your solution with someone who has used a different tool, and discuss the merits of each.	How can you relate your understanding of... to this problem?	In what other ways can you represent this problem?

## BLM 1.2.2: Mathematical Processes Matching Activity

Place each phrase from the envelope in the correct space.

**Note:** There is one phrase per space.

Reasoning and Proving	Reflecting	Selecting Tools and Computational Strategies	Connecting	Representing
<b>Role of Students</b>				
<b>Instructional Strategies</b>				
<b>Sample Questions</b>				
<b>Sample Feedback</b>				

## Series 2 – Session 3: Teaching with a Focus on One Mathematical Process

### Professional Learning Goals

- Build knowledge of a particular Mathematical Process.
- Adjust the lesson to focus on this Mathematical Process.
- Reflect on their practice to assess impact on students' development of that Mathematical Process.

### Materials

- TIPS4RM: Mathematical Processes package
- Adjusted Lesson for appropriate process and grade
- Video: Selected Mathematical Process

### Assessment Opportunities

#### Minds On ...

10 minutes

#### Whole Group → View Video

Select a Mathematical Process (Reasoning and Proving, Reflecting, Selecting Tools and Computational Strategies, Connecting, or Representing) to emphasize during this session.

Participants view the corresponding video.

#### Action!

20 minutes

#### Groups of 4 → Lesson Engagement

Participants engage in the corresponding adjusted lesson, keeping in mind that the lesson is intended to focus on a particular process.

#### Consolidate Debrief

10 minutes

#### Whole Group → Video and Discussion

Participants identify aspects of the lesson that emphasize the particular Mathematical Process. Make reference to the four sections - Role of Students, Instructional Strategies, Sample Questions, and Sample Feedback - for that particular Mathematical Process outlined in the TIPS4RM package. Participants anticipate possible student responses to the questions in the lesson

#### Home Activity or Further Classroom Consolidation

Implement the adjusted lesson with your class and reflect on strengths of the lesson, adjustments made during lesson, and what additional strategies could help students develop their skills with that particular Mathematical Process.

Be prepared to share reflections during the **Minds On** for the next session.

*Concept practice  
Reflection*

Provide participants with the appropriate section from TIPS4RM Mathematical Process package

Modified Lesson Study: One person in the group teaches the lesson while other group members observe, the lesson is further adjusted, then taught again by another teacher

**Note:** For Series 2 Sessions 4–7 repeat Session 3, each time highlighting a different Mathematical Process.

## Series 3 – Session 1: Mathematical Processes

### Professional Learning Goals

- Develop awareness of the Mathematical Processes.
- Build on knowledge of the processes of Communicating and Problem Solving.
- Identify the Mathematical Process(es) in a lesson.

### Materials

- TIPS4RM  
Mathematical Processes package
- Mathematical Processes video
- highlighters
- chart paper

### Assessment Opportunities

**Minds On ...**

**10 minutes**

#### Individual → Observing Video

View the Mathematical Processes video.

**Action!**

**20 minutes**

#### Individual → Reading

Read from the TIPS4RM Mathematical Processes package, Problem Solving p. 2 and Communicating p. 10. Highlight key points for future reference.

**Consolidate  
Debrief**

**10 minutes**

#### Individual → Journal Reflection

In your journal, reflect how you think Problem Solving and Communicating are connected to the other five Mathematical Processes.

#### Home Activity or Further Classroom Consolidation

Read the assigned lesson and determine which Mathematical Processes that the lesson tends to support.

Suggested Lessons:

- Grade 7  
Unit 2 Day 1
- Grade 8  
Unit 5 Day 1
- Grade 9 Applied  
Unit 1 Day 3
- Grade 10 Applied  
Unit 2 Day 4

## Series 3 – Session 2: Reasoning and Proving

### Professional Learning Goals

- Build knowledge of the Mathematical Process of Reasoning and Proving by reading about the process and observing the process in action.
- Practise new knowledge by teaching a lesson that focuses on Reasoning and Proving.
- Reflect on their practice to assess impact on students' development of the Reasoning and Proving process.
- Translate knowledge of Reasoning and Proving into practice by adjusting a lesson (optional).

### Materials

- TIPS4RM Mathematical Processes package
- Reasoning and Proving video
- TIPS4RM Grade 9 Applied adjusted lesson

### Assessment Opportunities

**Minds On ...**

**10 minutes**

#### Individual → View Video and Reading

Participants view the Reasoning and Proving video.

They read the Reasoning and Proving section of the Mathematical Processes package pp. 3–4.

**Action!**

**60 minutes**

#### Individual → Reading and View Video

Participants read the original TIPS4RM, Grade 9 Applied, Unit 4, Day 1.

They observe the teacher discussion, classroom, and teacher follow-up discussion on the adjusted lesson on the Reasoning and Proving video.

**Consolidate Debrief**

**5 minutes**

#### Individual → Journal Reflection

Participants reflect on strengths of the lesson, adjustments made during lesson, and what additional strategies could help students develop their skills with Reasoning and Proving.

#### Home Activity or Further Classroom Consolidation

Teach one of the lessons adjusted for Reasoning and Proving or select another TIPS4RM lesson that highlights this Mathematical Process. Reflect on the lesson, assessing your own practice and its impact on the students' development of the Reasoning and Proving process.

Alternative: Choose a lesson and adjust it to focus on Reasoning and Proving. Teach this lesson and do the reflection as per [Home Activity](#).

## Series 3 – Session 3: Teaching with a Focus on one Mathematical Process

### Professional Learning Goals

- Build knowledge of one of the Mathematical Processes by observing a video and reading about the process.
- Practise new knowledge by teaching a lesson that focuses on that Mathematical Process.
- Reflect on their practice to assess impact on students' development of this Mathematical Process.
- Translate knowledge of this Mathematical Process into practice by adjusting a lesson (optional).

### Materials

- TIPS4RM Mathematical Processes package
- Reflecting video
- TIPS4RM Adjusted Lesson

### Assessment Opportunities

**Minds On ...**  
10 minutes

#### **Individual → View Video and Reading**

Participants select a Mathematical Process – Reflecting, Selecting Tools and Computational Strategies, Connecting, or Representing – to focus on and view the corresponding video.

They read the corresponding section of the Mathematical Processes package.

**Action!**  
10 minutes

#### **Individual → Reading**

Participants select the adjusted lesson for the Mathematical Process for a specific grade level. They read the original TIPS4RM lesson along with the adjusted lesson.

**Consolidate Debrief**  
5 minutes

#### **Individual → Journal Reflection**

Participants reflect on strengths of the lesson, adjustments made within the lesson, and additional strategies that could help the students develop their skills for a particular process.

#### **Home Activity or Further Classroom Consolidation**

Implement one of the adjusted lessons for the particular mathematical process or select another TIPS4RM lesson highlighting this Mathematical Process. Reflect on the lesson, assessing your own practice of its impact on the students' development of that particular Mathematical Process.

Alternative: Choose a lesson and adjust it to focus on Reasoning and Proving. Teach this lesson and do the reflection as per **Home Activity**.

**Note:** For Series 3 Sessions 4–7, repeat Series 3, each time highlighting a different Mathematical Process.