

Professional Development Handout

What Is in This Handout?

- * Professional Development Tasks
- * Student Pages for the lesson: Add a Few
- * Teaching Guide for the lesson: Add a Few
- * Clipboard Prompts

Note: The contents of this handout are excerpted from *Math Pathways & Pitfalls Lessons and Teaching Manual* (Second Ed.) by Barnett-Clarke, Ramírez, Coggins, Salguero, Franco, and Rosenfeld. © 2024 WestEd. <https://mpp.WestEd.org>

How Is It Used?

This handout contains professional development tasks that accompany the Video for Teachers, available in the Online Digital Resource Library. Together these tools provide an introduction to *Math Pathways & Pitfalls*.

The tasks in the handout are ideal for group collaboration among colleagues, perhaps with a coach or facilitator. Alternatively, they may be used along with the video for individual study and reflection.

Tasks 1–3

Watch the Video for Teachers section called *Lesson In Action*. When prompted, complete each of the first three Professional Development Tasks using the Student Pages, Teaching Guide, and Clipboard Prompts included in this handout.

Task 4

Watch the Video for Teachers section called *Frequently Asked Questions*.

Complete Professional Development Task 4.

Note: The videos were created prior to publication of the *Math Pathways & Pitfalls* books, resulting in some small differences between the videos and the book contents.

Professional Development Tasks

Purpose

To increase understanding of the purpose, time frame, and process of *MPP* lessons

Materials

- Video for Teachers, in the Online Digital Resource Library
- Professional Development Handout for each participant
- *Discussion Builders* poster
- Monitor

Preparation

- Print the Professional Development Handout. Prepare a stapled packet of the handout for each participant.
- Set up the monitor.
- Post the *Discussion Builders* poster.

Time Frame

30 minutes per task; all four tasks may be completed during one session or spread over two to four sessions

PROFESSIONAL DEVELOPMENT TASK 1

Review the student pages for the featured lesson provided in the Professional Development Handout.

View *Lesson in Action Professional Development: Task 1*.

Complete the following reflective activities individually or with colleagues. Each participant should have a copy of the Professional Development Handout. This task will take about 30 minutes.

Lesson at a Glance and Lesson Foundation

Read the Lesson at a Glance and the Lesson Foundation sections of the teaching guide for the lesson in the handout.

- * About how much time is allotted for the core lesson on Day 1? on Day 2? What are the goals for the lesson? What materials are suggested?
- * Highlight ideas in the Mathematical Insights & Teaching Tips section that you found interesting or helpful. Why did you choose these ideas?
- * Highlight ideas from the Mathematical Discussion Support section and English Learner Access section that might be particularly important for your students. Why did you choose these ideas?

Core Lesson: Opener

Look at the *MPP* Lesson Roadmap excerpt to the right. The first part of a lesson is called the Opener. Read through the student pages and the teaching guide for this part of the lesson, thinking about the goals for this lesson.

Discussion Builders

Each lesson begins by reviewing the *Discussion Builders* posted in the front of the room. Read through the sentence stems on the poster.

- * What did you notice about the way the *Discussion Builders* were introduced on the video?
- * Which *Discussion Builders* do you think students will be most likely to adopt easily?
- * How might you encourage students to expand their use of different *Discussion Builders* over time?
- * About how much time is allotted for this activity in each lesson?

Purpose

Each lesson continues by reading the purpose.

- * How does reading the purpose of the lesson set the stage for purposeful and intentional learning?

Math Words

The Math Words on Student Page 1 are used in sentences to contextualize vocabulary. Notice that only about 5 minutes are allowed for this part of the lesson to help keep the lesson within the 45-minute time frame.

- * How are these sentences similar to or different from definitions?
- * Why might it benefit students to repeat the words aloud or silently?
- * Why is it helpful for students to see the words in writing?
- * On the video, how was the use of oral and written mathematical language encouraged and reinforced during the discussion?

Starter Problem

The Starter Problem is often not difficult. However, the underlying mathematical ideas are complex. If students do not make sense of the problem conceptually, their solution is very likely to have a pitfall. The Starter Problem motivates inquiry into the mathematical meaning of the problem, in part by eliciting pitfalls.

- * What are possible pitfalls for the Starter Problem in the lesson shown on the video? Why might they occur?

<i>MPP</i> Lesson Roadmap	
CORE LESSON: DAY 1	
Opener	
<i>Discussion Builders</i>	
Purpose	
Math Words	
Starter Problem	
Discussion	
Student Thinking	
Things to Remember	
Reflection	
CORE LESSON: DAY 2	
Review and Practice	
Review Day 1 Lesson	
Our Turn	
My Turn	
MINI LESSONS: 2-3 DAYS LATER	
Assess and Reinforce	
Multiple Choice Mini Lesson	
Writing Task Mini Lesson	

- * What mathematical concepts are foundational to understanding the meaning of the Starter Problem in this lesson? How would understanding these ideas help students make sense of their solution and avoid pitfalls?
- * In the video, students solved the Starter Problem individually. What is the rationale given for the approach? About how much time is suggested for working on the Starter Problem?
- * Students are asked to share their thinking, rather than their solutions, during the discussion that follows the Starter Problem. Students share their own solutions to problems after they have had an opportunity to self-correct their pitfalls and establish a conceptual foundation. Why might this strategy help lower the level of risk, broaden participation, and equalize the playing field for students?

PROFESSIONAL DEVELOPMENT TASK 2

View *Lesson in Action Professional Development: Task 2*.

Complete the following reflective activities individually or with colleagues. Each participant should have a copy of the Professional Development Handout. This task will take about 30 minutes.

Core Lesson: Discussion

Look at the *MPP* Lesson Roadmap excerpt to the right. The Discussion part of an *MPP* lesson is when students collaboratively develop their mathematical understandings. Read through the student pages and the teaching guide for this part of the lesson in the handout.

Student Thinking: OK

During this part of the lesson, students carefully analyze and discuss the thinking and drawing of a fictional student whose work is marked OK. This student's work conveys a pathway of thinking that is mathematically rich and packed with opportunities for learning. Students first work independently, then work in pairs, and finally participate in a whole-class discussion.

- * What was the teacher's role during this part of the lesson in the video?
- * How do students benefit from individually analyzing a fictional student's thinking before talking with a partner?
- * Why is it helpful to present the thinking of the fictional student in text rather than just orally? What are the particular benefits for English learners?
- * While students are talking in pairs, what kinds of things might the teacher take note of when listening in on students' conversations? How might these notes be helpful during the whole-class discussion?
- * What are the benefits and drawbacks of carefully unpacking the thinking and drawing of a fictional student before focusing on students' own solutions? Are there benefits for teachers?
- * Why will it be important for students to generate and share their own solution methods later in the lesson?

<i>MPP</i> Lesson Roadmap	
CORE LESSON: DAY 1	
Opener	Discussion Builders Purpose Math Words Starter Problem
Discussion	Student Thinking Things to Remember Reflection
CORE LESSON: DAY 2	
Review and Practice	Review Day 1 Lesson Our Turn My Turn
MINI LESSONS: 2-3 DAYS LATER	
Assess and Reinforce	Multiple Choice Mini Lesson Writing Task Mini Lesson

Student Thinking: Oops!

Next, students analyze the work of a fictional student whose work is marked Oops! Again, they work independently, then in pairs, and finally participate in a whole-class discussion. They are asked to figure out why a solution doesn't make sense or explain why it is a pitfall.

- * What did students in the video have to say about the pitfall? How might explaining why something is a pitfall motivate students to be more mindful of their own thinking?
- * Why is it important for students to explain why a solution doesn't make sense? How does this reinforce the meaning of a mathematical idea?
- * Reread the specific prompts provided in the teaching guide for the Student Thinking OK and Oops! parts of the lesson. Make a list of follow-up prompts a teacher might ask to probe student thinking further. Consider enacting this part of the lesson with a colleague to practice using follow-up questions to deepen conceptual understanding.

Things to Remember and Reflection

To close the Discussion part of the lesson, students generate a list of Things to Remember and participate in a Reflection of the discussion process.

- * Reread the teaching guide for these parts of the lesson. How much time is suggested for the two activities? What support is provided to the teacher? How do students benefit from this part of the lesson?

PROFESSIONAL DEVELOPMENT TASK 3

View *Lesson in Action Professional Development: Task 3*.

Complete the following reflective activities individually or with colleagues. Each participant should have a copy of the Professional Development Handout. This task will take about 30 minutes.

Core Lesson: Review and Practice

Look at the *MPP* Lesson Roadmap excerpt to the right. The second day of the lesson provides students opportunities to review the previous day's discussion and to practice by solving additional problems in the Our Turn and My Turn parts of the lesson. Read through the student pages and the teaching guide for this part of the lesson in the handout.

- * What is the purpose of these parts of the lesson? About how much time is spent on each part?
- * How did the teacher in the video handle the review of Day 1?

<i>MPP</i> Lesson Roadmap	
CORE LESSON: DAY 1	
Opener	Discussion Builders Purpose Math Words Starter Problem
Discussion	Student Thinking Things to Remember Reflection
CORE LESSON: DAY 2	
Review and Practice	Review Day 1 Lesson Our Turn My Turn
MINI LESSONS: 2-3 DAYS LATER	
Assess and Reinforce	Multiple Choice Mini Lesson Writing Task Mini Lesson

- * Solve the problems in the Our Turn and My Turn sections. Which problems extend students' thinking beyond the Starter Problem? In what ways are they different or more difficult?
- * What is the benefit for students to begin working in pairs for the Our Turn part? Why is it important for students to solve and then share their solutions for each problem in the Our Turn part of the lesson? How is the My Turn part of the lesson handled differently?
- * Find the Clipboard Prompts in your book or in the handout. How will these be helpful during the discussion of the Our Turn problems?

Mini Lessons: Assess and Reinforce

The mini lessons are completed 2 or 3 days after the core lesson. They each take approximately half of a class period and may be presented on the same day or on different days. Read through the student pages and the teaching guide for the mini lessons in the handout.

- * How does the Multiple Choice Mini Lesson format help students be more metacognitive and aware of pitfalls in their own thinking?
- * How does discussing the choices prepare students for achievement testing?
- * Notice the sequence of the Writing Task Mini Lesson: Read the problem, brainstorm, write together on the board, and write an explanation on the student's own page. How will this sequence be helpful to English learners and students who have difficulty reading, writing, or using mathematical language?

MPP Lesson Roadmap	
CORE LESSON: DAY 1	
Opener	Discussion Builders Purpose Math Words Starter Problem
Discussion	Student Thinking Things to Remember Reflection
CORE LESSON: DAY 2	
Review and Practice	Review Day 1 Lesson Our Turn My Turn
MINI LESSONS: 2-3 DAYS LATER	
Assess and Reinforce	Multiple Choice Mini Lesson Writing Task Mini Lesson

PROFESSIONAL DEVELOPMENT TASK 4

View the *Frequently Asked Questions* part of the video.

Read the questions and answers below.

Reflect individually or work with a partner to generate or find answers to additional questions that you may have. This task will take about 30 minutes.

Frequently Asked Questions

How much time do I need to teach one lesson?

Each core lesson is designed to take approximately two 45-minute class periods. These class periods correspond to Day 1 and Day 2 of the lesson. Each mini lesson takes about 20–25 minutes.

How soon after the core lesson do I teach the mini lessons?

It is a good idea to teach the Multiple Choice Mini Lesson a day or two after the core lesson. The Writing Task Mini Lesson can be taught a day or two after the first mini lesson is complete. This timing allows students time to revisit the concepts in the core lesson in a different context.

What if the Starter Problem or lesson is too hard for my students?

These lessons have been used effectively to introduce new concepts and to reinforce concepts. If the concept is new, anticipate that the Starter Problem may be especially challenging for a lot of students. If students are having difficulty, resist the urge to explain how to do the problem or give an on-the-spot lesson. Instead, ask students to think about what the problem means and to draw or write down anything that might help them understand it so that they can participate in the discussion that follows.

When the lesson is particularly difficult and the students are having trouble contributing to the discussion, focus more attention on the meaning of the problem rather than the solution to the problem. For example, carefully walk through the OK statement and drawing, asking questions about the details of what the fictional student said and did. You may need to provide additional examples similar to the Starter Problem and collaboratively work through them, making sure to focus on the meaning of the problem before tackling the solution.

What if my students don't talk?

In the beginning, students may be reluctant to speak, especially if they have made a pitfall. Reinforce the use of the *Discussion Builders*, and revisit the idea that this is a class endeavor with the goal of getting rid of pitfalls together. This makes it easier for students to share their thinking to help the class reach its goal. Some teachers have shown the student video a second or third time to their students to reinforce how to talk with a neighbor and how to ask questions of each other, in pairs and in the whole-class discussions. The video shows students how even reluctant speakers can make a contribution to the class.

Is there time to let everyone share ideas at the board?

Notice that there are prompts in the teaching guide that require you to ask students to talk to a neighbor. It is in these pairs that all students will get an opportunity to think out loud with someone. When you do call a student to the board, everyone else's job is to ask questions about or comment on that student's idea. This helps keep the discussion focused and prevents it from jumping around from idea to idea.

What if my students don't feel confident using mathematical terms or speaking in English?

There are multiple opportunities for students to engage in the lessons, and each lesson includes a variety of risk structures. Over time, with the use of partner talk, whole-class talk, and *Discussion Builders*, students begin to increase both their ability in academic English and their willingness to use it publicly. Gently encourage all students to speak, but respect their wishes if they are not ready.

Why does the Student Thinking section of the lessons include drawings so frequently?

One purpose of the lessons is to help students visualize mathematical ideas. Diagrams are important to mathematical thinking and learning because they can help students unpack the meaning of each part of a problem and make sense of the solution. Our lessons provide students with visual models and diagrams and often encourage students to generate their own. These visual models provide fertile ground for discussing and analyzing abstract mathematical ideas.

Additional Professional Development Suggestions

MPP Research and Rationale

We suggest making it a priority to read *Math Pathways & Pitfalls: Linking Research, Standards, and Practice* on pages 1–19. This section shares the vision and rationale for *MPP* and presents research findings on the impact of *MPP*. It also includes suggestions for adapting *MPP* to different situations and needs. A lot of information is presented, so it may be helpful to break it into parts. Also, look through the research papers cited in this section to find readings that could be used for study groups or individual reflection. We encourage you to check our website for additional resources: mpp.WestEd.org.

Lesson Study Groups

An excellent way to learn from colleagues while teaching *MPP* lessons is meeting with fellow teachers once or twice monthly to plan new lessons and debrief *MPP* lessons previously taught. Consider meeting with teachers at the same grade level so that you can teach the same lessons. The Lesson Foundation and Discussion sections of the teaching guide for each lesson are excellent resources for study groups. To become more familiar with the mathematics and to practice questioning techniques, enact the lesson with colleagues in pairs or small groups. Study group leaders or coaches will find many ways to adapt the teaching guides for professional learning.

NAME: _____



Purpose

To add a few more to a number

Math Words

add on I can start with 28 shells and add on 2 more to make 30.

sum When you add 8 and 5, you get 13 as the sum.

Starter Problem

Think about the meaning. Solve.

$$68 + 7 = \underline{\quad}$$

NAME: _____

Starter Problem

Think about the meaning. Solve.

$$68 + 7 = \underline{\quad}$$

Student Thinking

Katie

I added 7 in my head using easy steps. 68 and 2 more made 70. Then 5 more made 75. I could add on paper too.



$$68 + 7 = \underline{75}$$



Sam

I just lined them up and added. It's 138.



$$\begin{array}{r} 68 \\ + 7 \\ \hline 138 \end{array}$$

Things to Remember

*

*

_____

NAME: _____

Our Turn

Write the sum for each problem.

1. $45 + 8 =$ _____

2. $59 + 3 =$ _____

3. $4 + 60 =$ _____

NAME:

My Turn

Write the sum for each problem.

1. $48 + 6 =$ _____

2. $70 + 5 =$ _____

3. $8 + 39 =$ _____

NAME: _____

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. $63 + 8 =$ _____

☐ 143☐ 61☐ 71

2. $59 + 6 =$ _____

☐ 55☐ 65☐ 119

NAME: _____

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. $63 + 8 =$ _____

☐ 143☐ 61☐ 71

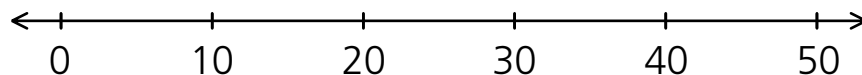
2. $59 + 6 =$ _____

☐ 55☐ 65☐ 119

NAME: _____

Writing Task Mini Lesson

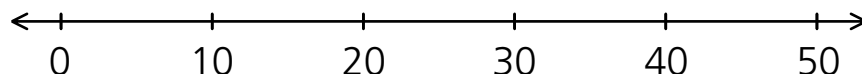
Explain how to add $36 + 7$ in easy steps. You may draw on this number line to help you explain.



NAME: _____

Writing Task Mini Lesson

Explain how to add $36 + 7$ in easy steps. You may draw on this number line to help you explain.



Add a Few

Lesson at a Glance

Prior Learning Needed

- Use a number line
- Add using an algorithm

Lesson Preparation



















- Study Lesson Foundation
- Review Teaching Guide and Student Pages
- Prepare stapled packet of Student Pages 1–4 for each student
- Copy and cut in half Student Pages 5 and 6
- Post *Discussion Builders* poster

Mathematical goals

- * Increase a number by a specific amount
- * Count forward from one decade to the next

Mathematical language and reasoning goals

- * Use a mental number line to add
- * Count up in easy steps using benchmarks

LESSON ROADMAP			MATERIALS
CORE LESSON: DAY 1	GROUPING	TIME	<ul style="list-style-type: none"> ○ <i>Discussion Builders</i> poster ○ Projector (optional) ○ Student Page 1 ○ Student Page 2 ○ Teaching Guide ○ Place value materials (suggested)
Opener			
<i>Discussion Builders</i>			
Purpose			
Math Words			
Starter Problem			
Discussion			<ul style="list-style-type: none"> ○ Clipboard Prompts, page 39 ○ Student Page 2 (completed day 1) ○ Student Pages 3 and 4 ○ Teaching Guide ○ Place value materials (suggested)
Student Thinking			
Things to Remember			
Reflection			
CORE LESSON: DAY 2			
Review and Practice			<ul style="list-style-type: none"> ○ Student Pages 5 and 6 ○ Teaching Guide ○ Base ten blocks, beans or counters, copies of number lines (suggested)
Review Day 1 Lesson			
Our Turn			
My Turn			
MINI LESSONS: 2–3 DAYS LATER			
Assess and Reinforce			
Multiple Choice Mini Lesson			
Writing Task Mini Lesson			

Lesson Foundation

LESSON SNAPSHOT

Starter Problem

Think about the meaning. Solve.

$$68 + 7 = \underline{\quad}$$

Student Thinking



Katie

I added 7 in my head using easy steps. 68 and 2 more made 70. Then 5 more made 75. I could add on paper too.



$$68 + 7 = \underline{75}$$



Sam

I just lined them up and added. It's 138.



$$\begin{array}{r} 68 \\ + 7 \\ \hline 138 \end{array}$$

MATHEMATICAL INSIGHTS & TEACHING TIPS

Adding Using a Mental Number Line

Katie thought of a number line in her head to visualize adding $68 + 7$. She added on 2 units to 68 to get to 70. Then, she added on 5 more units to get to 75. So, $68 + 7$ (or $68 + 2 + 5$) equals 75. Notice that she added on in easy steps, taking advantage of the benchmark number 70, which is a multiple of 10.

She also could have added $68 + 1 + 6$. In fact, she could have used hops for any combination of 7, such as $5 + 2$, $4 + 3$, or $3 + 3 + 1$, because 7 more than 68 is always 75. Since the addition operation is commutative, the order of the hops doesn't matter. So, she could have made a hop for 5, then a hop for 2, and still have gotten the sum of 75. A mental number line is a powerful model that helps students visualize addition whether they are computing with whole numbers, fractions, or decimals.



Sam used the addition algorithm to add 68 and 7, but when he wrote down the numbers, he lined them up beginning with the digits on the left instead of the right.

Lesson Foundation

(continued)

MATHEMATICAL INSIGHTS & TEACHING TIPS (CONTINUED)



Katie's number line shows a long hop for 68 and two little short hops for +2 and +5. Encourage students to make the hops somewhat proportional to the size of the numbers, but do not require them to be exact in their drawing. In this lesson, the drawing is used as a tool to help students visualize and support their reasoning.

Place Value and Addition Algorithm Pitfalls

Sam used the traditional addition algorithm to add 68 and 7. However, he lined up the digits beginning on the left side rather than the right so that digits with different place values were added together. In other words, he mistakenly added 70, not 7, by placing the 7 under the 6 (tens) instead of under the 8 (ones).

Gaining Facility with Both Mental and Paper-and-Pencil Methods

Katie solved the problem mentally, and she said she could have added on paper too. Sam used a paper-and-pencil algorithm but did it incorrectly. Sam also failed to use number sense to realize that 138 is not a reasonable sum when adding 68 and 7. Students should gain facility with both methods and monitor how reasonable their answers are, regardless of the method they choose. Mental math is an efficient way to calculate many problems and is often used to check if an answer makes sense. Paper-and-pencil algorithms are helpful in more complicated multidigit computation.



Students need to be convinced that counting up on a mental number line results in the same sum as when they add using the paper-and-pencil algorithm. Ask them to prove it (perhaps using base ten blocks or expanded notation) and to explain why.

MATHEMATICAL DISCUSSION SUPPORT

Ask students questions that prompt them to use place value ideas and reasoning to explain or show why it doesn't make sense to get 138 as the sum of 68 and 7.

Remind students that Katie used a mental number line to add 7 in easy steps by keeping in mind benchmarks like multiples of 5 and 10. Draw number lines using numbers similar to the ones in the Starter Problem so that the size of each hop is related to benchmark numbers.



Help students understand the relationship between the hops on the number line and what Katie refers to as "easy steps."

Have students trace the long hop that Katie drew, which gets her to 68. Ask what the next hop is. Where does it land? Explain that the hops represent easy steps because they got Katie to benchmark numbers like 70, which are easy to work with.

Core Lesson Day 1

Opener

Review *Discussion Builders*

Read the poster. **Suggest** a section to focus on today:

Presenting Our Ideas, Adding to Others' Ideas, or Asking More Questions.

Purpose

Distribute stapled packets of Student Pages 1–4. **Project** an image of page 1 (optional).

Call on a student to read the purpose.

Math Words

Point to and say the first math words. **Ask** students to repeat them aloud or silently.

Read the sentence containing the words.

Give an example using objects or drawings.

Repeat for the other math word.

STUDENT PAGE 1

Purpose

To add a few more to a number

Math Words

add on I can start with 28 shells and add on 2 more to make 30.

sum When you add 8 and 5, you get 13 as the sum.

Starter Problem

Think about the meaning. Solve.

$$68 + 7 = \underline{\quad}$$

Starter Problem

Read the Starter Problem. **Call on** a student to restate it in their own words.



Please use what you already know to help you solve this problem on your own. This will prepare you to talk about the math and how to avoid pitfalls in our discussion later on.

I'll walk around and make notes about things we need to discuss. Look out for oops, or pitfalls!




Look at your work. It's easy to have an oops, or pitfall, in this type of problem. You might also have made a pitfall if your answer is more than 100.

Don't worry. Next we'll discuss how two imaginary students solved this problem. One has a pitfall! You may keep your solution private, but bring up your ideas in the discussion.

Discussion


Student Thinking

STUDENT PAGE 2




Katie

I added 7 in my head using easy steps. 68 and 2 more made 70. Then 5 more made 75. I could add on paper too.



$68 + 7 = \underline{75}$



Ask students to refer to page 2. **Read** the statement marked OK.

Explain that this statement is about the same problem students worked on earlier.



We can learn a lot about the math by studying what this student did.

Read each sentence silently and look at the drawing. Think about what they mean.



Now talk with a partner about what each sentence and each part of the drawing means.

Listen in, ask questions, and observe. **Note** potential contributions for the discussion.



Who can come up to explain how Katie showed 68 on her number line?

She drew two hops after 68. Who can explain what the two hops stand for?

Who can come up and explain how she showed that 68 plus 7 is 75?

Talk to your neighbor about what Katie meant by "I added using easy steps."



Why do you think she first added on 2 more in her head and then added 5 more?

Why is it easy to add 5 to 70?

What would happen if Katie started at 68 and made a hop for 1 and a hop for 6 more? Why is that like adding 7 all at once? Would she still get 75?

How could we use Katie's way to add $54 + 8$? What is another way?

Call on students to state things to remember about solving problems like this.

Start a Things to Remember list on the board.

MORE DAY 1

Core Lesson Day 1 (continued)

Discussion

Student Thinking, continued

STUDENT PAGE 2



Sam

I just lined them up and added. It's 138.

$$\begin{array}{r} 68 \\ + 7 \\ \hline 138 \end{array}$$

Oops!

Read the statement marked Oops. **Remind** students that this is a common pitfall.



Sam made a pitfall when he wrote the 7 under the 6 instead of under the 8. Talk with your neighbor about why his answer doesn't make sense. 

Did Sam line up the 7 with the tens place or the ones place? Explain how he mistakenly added 70 instead of 7.

Write the following problems on the board. **Ask** students to talk with a neighbor about which two of these problems show how to add $3 + 59$ by lining up the digits with the same place values. **Remind** students to look out for pitfalls. **Call on** students to explain.

$$\begin{array}{r} 3 \\ + 59 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ + 59 \\ \hline \end{array}$$

$$\begin{array}{r} 59 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 59 \\ + 3 \\ \hline \end{array}$$

Things to Remember

Call on students to **add** to the Things to Remember list on the board. **Read** the list.

Help students summarize and record two important Things to Remember.

Things to Remember List (sample)

1. To add on a few in your head, think of a number line and add using easy steps and benchmarks.
2. To add using paper, line up the numbers so you add ones to ones and tens to tens.

Reflection

Ask students to reflect on the discussion process using one of the sample prompts.

Reflection Prompts (sample)

- Name a *Discussion Builder* that we used today. How did it help the discussion?
- What *Discussion Builder* could we use next time to make the discussion even better?
- What did someone do or say today that helped you understand the math?

Core Lesson Day 2

Review and Practice

Review

Ask students to review page 2 to jog their memory.

Read the statement marked OK. **Call on** a student to explain how the problem was solved.

Read the statement marked Oops. **Call on** a student to explain why it is incorrect or doesn't make sense.

Call on two or three students to read an item on their Things to Remember list.

STUDENT PAGE 2



I added 7 in my head using easy steps. 68 and 2 more made 70. Then 5 more made 75. I could add on paper too.

OK

$$68 + 7 = 75$$

Diagram showing a number line from 0 to 75. Arrows indicate jumps of 2 and 5 from 68 to 75.



I just lined them up and added. It's 138.

Oops!

$$\begin{array}{r} 68 \\ + 7 \\ \hline 138 \end{array}$$

Our Turn

Ask students to refer to page 3.

Use the procedure below and the Clipboard Prompts to discuss students' solutions. **Discuss** the problems one at a time.

Read the problem.

Ask students to work with a neighbor to solve it.

Discuss one or two students' solutions.

Answer Key

- 53
- 62
- 64

STUDENT PAGE 3

Our Turn

Write the sum for each problem.

1. $45 + 8 = \underline{\hspace{2cm}}$

2. $59 + 3 = \underline{\hspace{2cm}}$

3. $4 + 60 = \underline{\hspace{2cm}}$

My Turn

Ask students to solve the problems on page 4. **Remind** them to watch out for pitfalls!

After allowing time to work, **read** the answers. **Have** students mark and revise their papers using ink or crayon.

Answer Key

- 54
- 75
- 47

STUDENT PAGE 4

My Turn

Write the sum for each problem.

1. $48 + 6 = \underline{\hspace{2cm}}$

2. $70 + 5 = \underline{\hspace{2cm}}$

3. $8 + 39 = \underline{\hspace{2cm}}$

Mini Lessons (2–3 Days Later)

Assess and Reinforce


Multiple Choice Mini Lesson

Distribute Student Page 5.

Problem 1



Please read problem 1.

Talk with your neighbor about which choices don't make sense. 

What is the correct choice?

Who can show why 71 is the correct choice?

STUDENT PAGE 5

Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. $63 + 8 =$ _____

☐ 143

☐ 61

☒ 71

2. $59 + 6 =$ _____

☐ 55

☒ 65

☐ 119



Remind students that they can use benchmark numbers to add on mentally in easy steps. Help them see that 63 and 7 more is equal to 70, plus 1 more is 71.

Problem 2



Read the problem and find the correct choice. 

Which response is correct? Explain why.

How can you use a number line to check that $59 + 6$ is 65? Explain.

Writing Task Mini Lesson

Distribute Student Page 6.

Ask a student to read the task. Call on students to respond with their ideas.

Jot the ideas on the board.

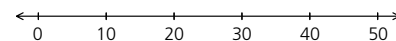
Write an explanation together using their ideas. Read it aloud.

Ask students to write an explanation on their page.

STUDENT PAGE 6

Writing Task Mini Lesson

Explain how to add $36 + 7$ in easy steps. You may draw on this number line to help you explain.



Sample Explanation: I start with 36 and need to add on 7. First, I draw a hop of 4 to show that I used an easy step to get from 36 to 40. Then, I need to add on 3 more, which is easy. So, I've really added 7. That's 43.



Mathematical Discussion Support

When generating ideas, invite students to use drawings or materials such as number lines or base ten blocks to help them describe their thinking.

Ask students to explain what using easy steps and benchmark numbers mean. Ask them to write or give oral examples of benchmark numbers.

Clipboard Prompts

Effective instructional dialogue digs deep into one student's thinking or one idea at a time. To unfold understanding, begin with a broader question and then follow up with probes for more detail. Use the first set of prompts below to focus students' attention on what the problem means. Use the second set of questions to delve into students' solutions. Finally, use the third set of prompts to invite reflection and ask for other approaches.

1 Understanding the Problem

- ☐ Who can explain what this problem means—not how to solve it? What does it mean?
- ☐ How do you read this (point to a word, phrase, number, symbol, or equation)? What does it mean?
- ☐ Could someone show us how to use a drawing or materials to show what it means? Please explain _____. Please label _____. How does this help us understand?
- ☐ Do you think the answer will be greater or less than _____? Maybe you're not sure yet, but what do you think ...?

2 Understanding the Solution Process

- ☐ Who would like to show us how they solved the problem?
- ☐ Please say more. Could you help us understand why you _____? What does _____ mean? Why does it make sense to _____? How is this different from _____?
- ☐ Some of you seem to have questions about this idea. Who has a question? What is confusing?
- ☐ Can someone else help us clarify this idea? Who has another way to help us understand it?

3 Reflecting On and Extending the Problem

- ☐ Explain how you know this answer makes sense. How could you check? How can we show or prove it is correct?
- ☐ Does someone have another approach? Could we use a drawing? Could we use a paper-and-pencil procedure?