

## Grade 2 Lesson-Planning Tool for Mathematical Practice 2

<p><b>Unit:</b> Solving word problems (2.OA.1)</p> <p><b>Date:</b> October 8</p> <p><b>Lesson:</b> Add to and take apart (total unknown, part unknown)</p>	
<p><b>Learning objective:</b> As a result of class today, students will be able to solve addition and subtraction problems and share their strategies.</p>	
<p><b>Essential Standard for Mathematical Practice:</b> As a result of class today, students will be able to demonstrate greater proficiency in which Standard for Mathematical Practice?</p> <p><b>Mathematical Practice 2:</b> "Reason abstractly and quantitatively."</p> <ul style="list-style-type: none"> <li>• Students will read and make sense of word problems.</li> <li>• Students will solve problems and explain their thinking to others.</li> </ul>	
<p><b>Formative assessment process:</b> How will students be expected to demonstrate mastery of the learning objective during in-class checks for understanding teacher feedback, and student action on that feedback?</p> <ul style="list-style-type: none"> <li>• Students will use red and green cups to indicate their level of confidence as they work through the problems.</li> <li>• Students will share their thinking with their partner and then again in their group of four while teachers circulate to monitor students' progress and listen to students' strategies.</li> </ul>	
<p><b>Probing Questions for Differentiation on Mathematical Tasks</b></p>	
<p><b>Assessing Questions</b> (Create questions to scaffold instruction for students who are stuck during the lesson or the lesson tasks.)</p> <ul style="list-style-type: none"> <li>• What is the problem asking?</li> <li>• What action is occurring in this problem?</li> <li>• What do the numbers represent in this problem?</li> <li>• What strategies might you consider using (use objects, make a picture, part-part-whole, number line, or other graphic organizer)?</li> </ul>	<p><b>Advancing Questions</b> (Create questions to further learning for students who are ready to advance beyond the learning standard.)</p> <ul style="list-style-type: none"> <li>• Does your answer make sense?</li> <li>• How can you represent this problem in a different way?</li> <li>• <math>14 + ? = 72</math> This is the headline. Write a story problem that you could use the equation to solve.</li> </ul>

<b>Tasks</b> (Tasks can vary from lesson to lesson.)	<b>What Will the Teacher Be Doing?</b> (How will the teacher present and then monitor student response to the task?)	<b>What Will Students Be Doing?</b> (How will students be actively engaged in each part of the lesson?)
<p><b>Beginning-of-Class Routines</b></p> <p>How does the warm-up activity connect to students' prior knowledge, or how is it based on analysis of homework?</p>	<p>Teacher will conduct a number talk. Remind students of hand signals for number of strategies.</p> <p><math>6 + 6 = ?</math></p> <p>Ask students to share answer and strategy with their elbow partner.</p> <p>Teacher records one or two strategies.</p> <p><math>16 + 16 = ?</math></p> <p>After students solve and share with partners, ask for strategies and "How did the first question help you answer the second one?"</p>	<p>Students sit in front of the whiteboard and mentally find the answers to the series of questions.</p> <p>Students share with partners.</p> <p>Students reflect and share with partners.</p>
<p><b>Task 1</b></p> <p>How will students be engaged in understanding the learning objective? (See figure 2.12.)</p>	<p>Have students sit in groups of four. Share learning target with students. Tell them that they will work independently at first and then share with partner. When the partners agree, they will share with two other students who are in their group of four. Students share and compare their results.</p> <p>Remind students of the purpose of red and green cups. Green cup indicates that they are proceeding with the work. Red cup indicates that the team has a question.</p> <p>Actively listen to students' discussions. Look for red cups that students place on their desk indicating that both partners have a question.</p>	<p>Students work independently on task 1. When partners have finished, they compare their strategies and their solutions. If solutions disagree, partners work together to find the correct answer. If strategies are different, students share their reasoning. When partners are finished, they work with two other students in their group to share and compare.</p> <p>Students use red and green cups as indicators of progress.</p>

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<b>Task 2</b> How will the task develop student sense making and reasoning? (See figure 2.13.)	For those groups of four who have completed task 1, provide them with the task 2 activity, Pick a Pair (see figure 2.13, page 58). Actively listen to students' discussions. Record statements that you want to revisit with the whole group.	Students select values they will use to place in the problem. They will then solve the problem. Students discuss in their group how the problems are the same and how the problems are different.
<b>Task 3</b> How will the task require student conjectures and communication? (See figure 2.14.)	Provide partners with task 3. Students work independently at first and then share and compare with their partners.	Students work independently to determine if the problem's solution is correct. When the partners collaborate, each student needs to be ready to justify his or her thinking.
<b>Closure</b> How will student questions and reflections be elicited in the summary of the lesson? How will students' understanding of the learning objective be determined? (See figure 2.15.)	Ask students to come together, bring their work, and sit with their partner. Ask, "In task 1, how were these two problems the same? How were they different?" Record unique responses on chart paper. Ask, "Did you use the same operation to solve both problems?" Record class conclusions. Review learning target.	Students discuss with partners. Selected students share with class. Students discuss. Students indicate on the Likert scale their level of understanding in terms of the learning target.

Source: Template adapted from Kanold, 2012c. Used with permission.

## References

Kanold, T. D. (Ed.). (2012c). *Common Core mathematics in a PLC at Work, leader's guide*. Bloomington, IN: Solution Tree Press.