Figure 2.8:
CCSS Mathematical Practices Lesson-Planning Tool

Unit:	**Date:**	**Lesson:**

Learning target: As a result of today's class, students will be able to _____

Formative assessment: How will students be expected to demonstrate mastery of the learning target during in-class checks for understanding?

Probing Questions for Differentiation on Mathematical Tasks

Assessing Questions	**Advancing Questions**
(Create questions to scaffold instruction for students who are "stuck" during the lesson or the lesson tasks.)	(Create questions to further learning for students who are ready to advance beyond the learning target.)

Targeted Standard for Mathematical Practice:

Which Mathematical Practice will be targeted for proficiency development during this lesson?

Tasks (Tasks can vary from lesson to lesson.)	**What Will the Teacher Be Doing?**	**What Will the Students Be Doing?** (How will students be actively engaged in each part of the lesson?)
Beginning-of-Class Routines How does the warm-up activity connect to students' prior knowledge?		

Tasks (Tasks can vary from lesson to lesson.)	**What Will the Teacher Be Doing?**	**What Will the Students Be Doing?** (How will students be actively engaged in each part of the lesson?)
Task 1 How will the students be engaged in understanding the learning target?		
Task 2 How will the task develop student sense making and reasoning?		
Task 3 How will the task require student conjectures and communication?		
Closure How will student questions and reflections be elicited in the summary of the lesson? How will students' understanding of the learning target be determined?		

Sample Lesson-Planning Tool: Algebra 1–2

Unit: Inequalities **Date:** February 1, 2012 **Lesson:** Multistep inequalities

Learning target: As a result of today's class, students will be able to—

- Analyze a multistep inequality, solve using an appropriate method, and verify a solution.
- Represent a solution of an inequality on a number line.
- Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters (A-REI.3)
- Write, show, and interpret inequalities on the real number line
- Create and solve linear inequalities

Formative assessment: How will students be expected to demonstrate mastery of the learning target during in-class checks for understanding?

After each set of problems, student groups will share their answers. Teachers will provide additional support for those groups that need it.

Students will find and fix the error in a multistep inequality as an exit ticket before leaving the classroom for the day.

Probing Questions for Differentiation on Mathematical Tasks

Assessing Questions

(Create questions to scaffold instruction for students who are "stuck" during the lesson or the lesson tasks.)

- If that was an equal sign instead of an inequality, how would you start the problem?
- Do we have a lonely number and an attached number? Which one do we move first?
- What is usually the first step when we solve an equation?
- How do we check that a solution is correct?
- What do we have to be very careful about when solving an inequality (for closure problem)?

Advancing Questions

(Create questions to further learning for students who are ready to advance beyond the learning target.)

- I see that you checked the solution using $x =$ _____. Is there a different value that you could have used?
- Can you create a similar question that has the same set of solutions as this one?
- What real-life situation could be modeled by this inequality?

Targeted Standard for Mathematical Practice: Mathematical Practice 1: Make sense of problems and persevere in solving them; Mathematical Practice 3: Construct viable arguments and critique the reasoning of others.

Which Mathematical Practice will be targeted for proficiency development during this lesson?

Tasks (Tasks can vary from lesson to lesson.)	**What Will the Teacher Be Doing?**	**What Will the Students Be Doing?** (How will students be actively engaged in each part of the lesson?)
Beginning-of-Class Routines **How does the warm-up activity connect to students' prior knowledge?** • Warm-up activity connecting to prior knowledge • Warm-up will consist of a single linear equation, $-3(x - 4) = 45$, as a refresher on how to solve and check multistep equations	Teacher will be taking attendance, collecting homework, and monitoring student progress during warm-up. Teacher will provide assistance to a student if needed.	Students will complete the warm-up on solving and checking a multistep equation. The students should attempt the problem individually; however, they are encouraged to consult their notes or a table partner if they need assistance.
Task 1 How will the students be engaged in understanding the learning targets? Two linear inequalities will be presented to the class for each group of students to solve and graph on a number line.	Teacher will pair the students at his or her table and assign the first pair of inequalities to the groups at each table. As students are working, teacher will monitor progress and ask assessing questions to assist learners.	Students will work with their number partner to solve the linear inequality. Students will graph the solution set on a number line after solving. Students should consult their number partner for assistance.
Task 2 How will the task develop student sense-making and reasoning? Inequality solutions from task 1 will be checked by table partner for accuracy.	Teacher will prompt students to trade solutions with their partners and check each other's work. Teacher will ask advancing questions to those students who are ready to move on.	Students trade solution with their partner. Students check partner's solution in original problem and verify accuracy. If a solution is incorrect, the student must find the mistake and explain to their partner.
Task 3 How will the task require student conjectures and communication? Real-time formative assessment.	Teacher prompts student groups to show their solution ("Hold up your whiteboards"). Teacher verifies accuracy of solutions and provides remediation for groups that need it.	Student groups reveal solutions written on whiteboard when prompted.
Closure Check for understanding via a worked-out solution that contains an error.	Teacher distributes check for understanding (ticket to leave). Teacher will assist student groups with finding the error via assessing questions.	Students will evaluate the procedures for solving the inequality, determine where the error appears in the solution, and write the correct solution.

Sample Lesson-Planning Tool: Geometry 2

Unit: Transformations **Date:** January 25, 2012 **Lesson:** Rotations

Learning target: As a result today's class, students will be able to—

- Explain the results of a rotation of a two-dimensional figure on the standard x-y rectangular coordinate plane using degrees and directions
- Give the coordinates
- Justify their answers

Formative assessment: How will students be expected to demonstrate mastery of the learning target during in-class checks for understanding?

Working in pairs and with a worksheet, one student will write a rotation and the other student will critique the rotation.

Probing Questions for Differentiation on Mathematical Tasks

Assessing Questions	Advancing Questions
(Create questions to scaffold instruction for students who are "stuck" during the lesson or the lesson tasks.) • What does 90 degrees look like to you? • Can you visualize the rotation? • Do you see any pattern in the coordinates?	(Create questions to further learning for students who are ready to advance beyond the learning target.) • Could you create a problem and have your partner finish it? • Could you create a real-life problem?

Targeted Standard for Mathematical Practice: Mathematical Practice 3: Construct viable arguments and critique the reasoning of others.

Which Mathematical Practice will be targeted for proficiency development during this lesson?

Tasks (Tasks can vary from lesson to lesson.)	What Will the Teacher Be Doing?	What Will the Students Be Doing? (How will students be actively engaged in each part of the lesson?)
Beginning-of-Class Routines How does the warm-up activity connect to students' prior knowledge? • Bell work • Warm-up activity • Tapping into prior knowledge	The teacher will verify that students are on task, using whiteboards and collaborating. The teacher will distribute bell worksheet.	The students will be plotting points. The students will construct congruent shapes.

Task 1 How will the students be engaged in understanding the learning target?	The teacher will model rotating a point or shape (two-dimensional figure; for example, rectangle), using appropriate vocabulary and citing changes in area and perimeter employing the procedure of "I do, you do, we do."	The students individually do rotation problems. The students model points on their own, and identify old and new points.
Task 2 How will the task develop student sense making and reasoning?	The teacher is distributing worksheets, monitoring, and asking probing and guiding questions.	The students work with each other, doing the exercise on a graph-paper worksheet. The students discuss their work. One student will rotate a figure, and the other student will critique the rotation.
Task 3 How will the task require student conjectures and communication?	The teacher will give students certain language to explain conjecture. Example: "My conjecture is _____, and I can justify it by _____." This might be done on a worksheet.	Sample student conjecture: Point A will rotate to Point B. One partner will ask the other partner, "Do you agree or disagree with my conjecture? Why? Why not?" Justify your response.
Closure How will student questions and reflections be elicited in the summary of the lesson? How will students' understanding of the learning target be determined?	The teacher will show student work (share student work with the class). The teacher will have students list everything they know or have noticed about rotations (for example, pre-image, image, and so on).	The students will summarize, explain learning, and articulate what they noticed regarding their rotations. The students will defend their rotations displayed to the teacher.