

INSTRUCTIONAL PRACTICE GUIDE: COACHING

MATH

SUBJECT

HS

GRADES

LESSON

GUIDE TYPE

Date

Teacher Name

School

Grade / Class Period / Section

Topic / Lesson / Unit

Standard(s) Addressed in this Lesson

Observer Name

Circle the aspect(s) of rigor targeted in the standard(s) addressed in this lesson¹:

Conceptual understanding

Procedural skill and fluency

Application

The coaching tool is for teachers, and those who support teachers, to build understanding and experience with Common Core State Standards (CCSS) aligned instruction. Designed as a developmental rather than an evaluation tool, it can be used for planning, reflection, collaboration, and coaching. The three Shifts in instruction for Mathematics provide the framing for this tool¹.



Focus: Focus strongly where the Standards focus.



Coherence: Think across grades, and link to major topics within grades.



Rigor: In major topics pursue conceptual understanding, procedural skill and fluency, and application with equal intensity.

The guide provides examples of what implementing the CCSS for Mathematics looks like in daily planning and practice. It is organized around three Core Actions which encompass the Shifts and instructional practice. Each Core Action consists of individual indicators which describe teacher and student behaviors that exemplify Common Core aligned instruction.

The Core Actions and indicators should be evident in planning and observable in instruction. For each lesson evidence might include a lesson plan, exercises, tasks and assessments, teacher instruction, student discussion and behavior, and student work. Although many indicators will be observable during the course of a lesson, there may be times when a lesson is appropriately focused on a smaller set of objectives or only a portion of a lesson is observed, leaving some indicators blank. Any particular focus should be communicated between teacher and observer before using the tool. Refer to the CCSS for Mathematics (corestandards.org/math) as necessary.

Companion tools for Instructional Practice include:

- Instructional Practice Guide: Coaching (Digital) - a digital version of this print tool, view at achievethecore.org/coaching-tool.
- Instructional Practice Guide: Lesson Planning- designed for teachers to support them in creating lessons aligned to the CCSS, view at achievethecore.org/lesson-planning-tool.

The guide should be used in conjunction with the Beyond the Lesson discussion questions. Both tools are available at achievethecore.org/instructional-practice.

**STUDENT
ACHIEVEMENT
PARTNERS**

1. Refer to Common Core Shifts at a Glance (achievethecore.org/mathshifts) and the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (achievethecore.org/publisherscriteria) for additional information about the Shifts required by the CCSS.

CORE ACTION 1: Ensure the work of the lesson reflects the Shifts required by the CCSS for Mathematics.

INDICATORS / NOTE EVIDENCE OBSERVED OR GATHERED FOR EACH INDICATOR	RATING
<p>A. The lesson focuses on the depth of course-level cluster(s), course-level content standard(s) or part(s) thereof.</p>	<p>Yes - The lesson focuses only on mathematics within the course-level standards and fully reflects the depth of the course-level cluster(s), course-level content standard(s) or part(s) thereof.</p> <p>No - The lesson focuses on mathematics outside the course-level standards or superficially reflects the course-level cluster(s), course-level content standard(s) or part(s) thereof.</p>
<p>B. The lesson intentionally relates new concepts to students' prior skills and knowledge.</p>	<p>Yes - The lesson explicitly builds on students' prior skills and knowledge and students articulate these connections.</p> <p>No - The lesson contains no meaningful connections to students' prior skills and knowledge.</p>
<p>C. The lesson intentionally targets the aspect(s) of rigor (conceptual understanding, procedural skill and fluency, application) called for by the standard(s) being addressed.</p>	<p>Circle the aspect(s) of rigor targeted in this lesson:</p> <p>Conceptual understanding Procedural skill and fluency Application</p> <p>Yes - The lesson explicitly targets the aspect(s) of rigor called for by the standard(s) being addressed.</p> <p>No - The lesson targets aspects of rigor that are not appropriate for the standard(s) being addressed.</p>

CORE ACTION 2: Employ instructional practices that allow all students to learn the content of the lesson.

INDICATORS ² / NOTE EVIDENCE OBSERVED OR GATHERED FOR EACH INDICATOR	RATING
<p>A. The teacher makes the mathematics of the lesson explicit by using explanations, representations, and/or examples.</p> <p style="text-align: right;"><input type="checkbox"/> NOT OBSERVED</p>	<p>4 - A variety of instructional techniques and examples are used to make the mathematics of the lesson clear.</p> <p>3 - Examples are used to make the mathematics of the lesson clear.</p> <p>2 - Instruction is limited to showing students how to get the answer.</p> <p>1 - Instruction is not focused on the mathematics of the lesson.</p>

2. These actions may be viewed over the course of 2-3 class periods.

CONTINUED FROM PREVIOUS PAGE

INDICATORS² / NOTE EVIDENCE OBSERVED OR GATHERED FOR EACH INDICATOR

RATING

B. The teacher provides opportunities for students to work with and practice course-level problems and exercises.

- 4 - Students are given extensive opportunities to work with course-level problems and exercises.
- 3 - Students are given opportunities to work with course-level problems and exercises.
- 2 - Students are given limited opportunities to work with course-level problems and exercises.
- 1 - Students are not given opportunities to work with course-level problems and exercises.

NOT OBSERVED

C. The teacher strengthens all students' understanding of the content by sharing a variety of students' representations and solution methods.

- 4 - A variety of student solution methods are shared and examined together to support mathematical understanding for all students.
- 3 - Student solution methods are shared to support mathematical understanding for some students.
- 2 - Student solution methods are shared.
- 1 - Student solution methods are not shared.

NOT OBSERVED

D. The teacher deliberately checks for understanding throughout the lesson and adapts the lesson according to student understanding.

- 4 - There are checks for understanding used throughout the lesson to assess progress of all students and adjustments to instruction are made in response, as needed.
- 3 - There are checks for understanding used throughout the lesson to assess progress of some students, minimal adjustments are made to instruction, even when adjustments are appropriate.
- 2 - There are few checks for understanding, or the progress of only a few students is assessed. Instruction is not adjusted based on students' needs.
- 1 - There are no checks for understanding, therefore no adjustments are made to instruction.

NOT OBSERVED

E. The teacher summarizes the mathematics with references to student work and discussion in order to reinforce the focus of the lesson.

- 4 - The lesson includes a summary with references to student work and discussion that reinforces the mathematics.
- 3 - The lesson includes a summary with a focus on the mathematics.
- 2 - The lesson includes a summary with limited focus on the mathematics.
- 1 - The lesson includes no summary of the mathematics.

NOT OBSERVED

2. These actions may be viewed over the course of 2-3 class periods.

CORE ACTION 3: Provide all students with opportunities to exhibit mathematical practices while engaging with the content of the lesson.³

INDICATORS^{4 5} / NOTE EVIDENCE OBSERVED OR GATHERED FOR EACH INDICATOR / RATING

- 4 – Teacher provides many opportunities, and most students take them.
- 3 – Teacher provides many opportunities and some students take them; or teacher provides some opportunities and most students take them.
- 2 – Teacher provides some opportunities and some students take them.
- 1 – Teacher provides few or no opportunities, or few or very few students take the opportunities provided.

<p>A. The teacher poses high-quality questions and problems that prompt students to share their developing thinking about the content of the lesson.</p> <p>Students share their developing thinking about the content of the lesson.</p>	<p style="text-align: right;">4 3 2 1 <input type="checkbox"/> NOT OBSERVED</p>
<p>B. The teacher encourages reasoning and problem solving by posing challenging problems that offer opportunities for productive struggle.</p> <p>Students persevere in solving problems in the face of initial difficulty.</p>	<p style="text-align: right;">4 3 2 1 <input type="checkbox"/> NOT OBSERVED</p>
<p>C. The teacher establishes a classroom culture in which students explain their thinking.</p> <p>Students elaborate with a second sentence (spontaneously or prompted by the teacher or another student) to explain their thinking and connect it to their first sentence.</p>	<p style="text-align: right;">4 3 2 1 <input type="checkbox"/> NOT OBSERVED</p>
<p>D. The teacher creates the conditions for student conversations where students are encouraged to talk about each other’s thinking.</p> <p>Students talk about and ask questions about each other’s thinking, in order to clarify or improve their own mathematical understanding.</p>	<p style="text-align: right;">4 3 2 1 <input type="checkbox"/> NOT OBSERVED</p>
<p>E. The teacher connects and develops students’ informal language to precise mathematical language appropriate to their course.</p> <p>Students use precise mathematical language in their explanations and discussions.</p>	<p style="text-align: right;">4 3 2 1 <input type="checkbox"/> NOT OBSERVED</p>
<p>F. The teacher establishes a classroom culture in which students choose and use appropriate tools when solving a problem.</p> <p>Students use appropriate tools strategically when solving a problem.</p>	<p style="text-align: right;">4 3 2 1 <input type="checkbox"/> NOT OBSERVED</p>
<p>G. The teacher asks students to explain and justify work and provides feedback that helps students revise initial work.</p> <p>Student work includes revisions, especially revised explanations and justifications.</p>	<p style="text-align: right;">4 3 2 1 <input type="checkbox"/> NOT OBSERVED</p>

³ There is not a one-to-one correspondence between the indicators for this Core Action and the Standards for Mathematical Practice. These indicators represent the Standards for Mathematical Practice that are most easily observed during instruction.

⁴ Some portions adapted from ‘Looking for Standards in the Mathematics Classroom’ 5x8 card published by the Strategic Education Research Partnership (math.serpermedia.org/tools_5x8.html)

⁵ Some or most of the indicators and student behaviors should be observable in every lesson, though not all will be evident in all lessons.

For more information on teaching practices, see NCTM’s publication Principles to Actions: Ensuring Mathematical Success for All for eight Mathematics Teaching Practices listed under the principle of Teaching and Learning. <http://www.nctm.org/principles-to-actions>

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