

CCSS INSTRUCTIONAL PRACTICE GUIDE

MATH

SUBJECT

K—8




GRADES

LESSON

GUIDE TYPE

This guide provides specific Core Actions teachers take when they are implementing the Common Core State Standards (CCSS) in daily planning and practice. It also includes indicators of what teachers are doing – and students are demonstrating – when those Core Actions are displayed. Designed as a developmental tool for teachers and those who support teachers, it can be used for planning, reflection, collaboration, and coaching. Refer to the CCSS for Mathematics (corestandards.org/math) as necessary.

The Shifts required by the Common Core State Standards for Mathematics are¹:

-  **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 Core Actions should be evident in planning and observable in instruction. For each lesson, evidence might include: lesson plan, problems and exercises, tasks and assessments, teacher instruction, student discussion and behavior, and student work. Although most or all indicators will be observable in a portion of a lesson, when necessary some indicators may be left blank.

STUDENT
ACHIEVEMENT
PARTNERS

Visit achievethecore.org/coaching-tool to use the digital version of the Instructional Practice Guide.

Date

Teacher / Instructor Name

School

Observer Name

Grade / Class Period / Section

Topic / Lesson / Unit

Standard(s) Addressed in this Lesson

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

Conceptual understanding

Procedural skill and fluency

Application

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.

SUMMARY OF CORE ACTIONS

Core Action 1

Ensure the work of the lesson reflects the Shifts required by the CCSS for Mathematics.

Indicators

- A. The lesson focuses on the depth of grade-level cluster(s), grade-level content standard(s) or part(s) thereof.
 - B. The lesson intentionally relates new concepts to students' prior skills and knowledge.
 - 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.
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Core Action 2

Employ instructional practices that allow all students to master the content of the lesson.

Indicators

- A. The teacher makes the mathematics of the lesson explicit by using explanations, representations, and/or examples.
 - B. The teacher provides opportunities for students to work with and practice grade-level problems and exercises.
 - C. The teacher uses variation in students' solution methods to strengthen all students' understanding of the content.
 - D. The teacher checks for understanding throughout the lesson using informal, but deliberate methods (such as questioning or assigning short problems).
 - E. The teacher summarizes the mathematics with references to student work and discussion in order to reinforce the focus of the lesson.
-

Core Action 3

Provide all students with opportunities to exhibit mathematical practices in connection with the content of the lesson.

Indicators

- A. The teacher poses high quality questions and problems that prompt students to share their developing thinking about the content of the lesson.
Students share their developing thinking about the content of the lesson.
- B. The teacher uses strategies to keep all students persevering with challenging problems.
Even after reaching a point of frustration, students persist in efforts to solve challenging problems.
- C. The teacher establishes a classroom culture in which students explain their thinking.
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.
- D. The teacher creates the conditions for student conversations where students are encouraged to talk about each other's thinking.
Students talk about and ask questions about each other's thinking, in order to clarify or improve their own mathematical understanding.
- E. The teacher connects students' informal language to precise mathematical language appropriate to their grade.
Students use precise mathematical language in their explanations and discussions.
- F. The teacher establishes a classroom culture in which students choose and use appropriate tools when solving a problem.
Students use appropriate tools strategically when solving a problem.
- G. The teacher asks students to explain and justify work and provides feedback that helps students revise initial work.
Student work includes revisions, especially revised explanations and justifications.

For each indicator, circle the appropriate rating based on what was observed during the lesson. Provide specific evidence to support the rating.

Core Action 1

Ensure the work of the lesson reflects the Shifts required by the CCSS for Mathematics.

Indicators

A. The lesson focuses on the depth of grade-level cluster(s), grade-level content standard(s) or part(s) thereof.

YES The lesson focuses only on mathematics within the grade-level standards and fully reflects the depth of the grade-level cluster(s), grade-level content standard(s) or part(s) thereof.

NO The lesson focuses on mathematics outside the grade-level standards or superficially reflects the grade-level cluster(s), grade-level content standard(s) or part(s) thereof.

B. The lesson intentionally relates new concepts to students' prior skills and knowledge.

YES The lesson explicitly builds on students' prior skills and knowledge and students articulate these connections.

NO The lesson contains no meaningful connections to students' prior skills and knowledge.

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.

Circle the aspect(s) of rigor targeted in this lesson:

Conceptual understanding Procedural skill and fluency Application

YES The lesson explicitly targets the aspect(s) of rigor called for by the standard(s) being addressed.

NO The lesson targets aspects of rigor that are not appropriate for the standard(s) being addressed.

Core Action 2

Employ instructional practices that allow all students to learn the content of the lesson.

Indicators ²

A. The teacher makes the mathematics of the lesson explicit by using explanations, representations, and/or examples.

- 4 A variety of instructional techniques and examples are used to make the mathematics of the lesson clear.
- 3 Examples are used to make the mathematics of the lesson clear.
- 2 Instruction is limited to showing students how to get the answer.
- 1 Instruction is not focused on the mathematics of the lesson.

Not Observed

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

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

Not Observed

C. The teacher uses variation in students' ways of thinking, representations, and solution methods to strengthen all students' understanding of the content.

- 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

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

Core Action 2 (continued)

Employ instructional practices that allow all students to learn the content of the lesson.

Indicators

D. The teacher deliberately checks for understanding throughout the lesson and adapts the lesson to meet the condition of the students learning.

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

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

Core Action 3

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

Indicators ^{4,5}

A. The teacher poses high quality questions and problems that prompt students to share their developing thinking about the content of the lesson.

Students share their developing thinking about the content of the lesson.

- 4 The teacher provides students opportunity consistently and most students demonstrate this behavior.
- 3 The teacher provides students opportunity consistently and some students demonstrate this behavior.
- 2 The teacher provides students opportunity inconsistently and few students demonstrate this behavior.
- 1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed

B. The teacher encourages reasoning and problem solving by posing challenging problems that offer opportunities for productive struggle.

Students persevere in solving problems in the face of initial difficulty.

- 4 The teacher provides students opportunity consistently and most students demonstrate this behavior.
- 3 The teacher provides students opportunity consistently and some students demonstrate this behavior.
- 2 The teacher provides students opportunity inconsistently and few students demonstrate this behavior.
- 1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed

C. The teacher establishes a classroom culture in which students explain their thinking well enough for other students to understand.

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.

- 4 The teacher provides students opportunity consistently and most students demonstrate this behavior.
- 3 The teacher provides students opportunity consistently and some students demonstrate this behavior.
- 2 The teacher provides students opportunity inconsistently and few students demonstrate this behavior.
- 1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed

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

4. Some portions adapted from 'Looking for Standards in the Mathematics Classroom' 5x8 card published by the Strategic Education Research Partnership (math.serpmedia.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.

Core Action 3 (continued)

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

Indicators

D. The teacher creates the conditions for student conversations where students are encouraged to talk about each other's thinking.

Students talk about and ask questions about each other's thinking, in order to clarify or improve their own mathematical understanding.

- 4 The teacher provides students opportunity consistently and most students demonstrate this behavior.
- 3 The teacher provides students opportunity consistently and some students demonstrate this behavior.
- 2 The teacher provides students opportunity inconsistently and few students demonstrate this behavior.
- 1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed

E. The teacher connects and develops students' informal language to precise mathematical language appropriate to their grade.

Students use precise mathematical language in their explanations and discussions.

- 4 The teacher provides students opportunity consistently and most students demonstrate this behavior.
- 3 The teacher provides students opportunity consistently and some students demonstrate this behavior.
- 2 The teacher provides students opportunity inconsistently and few students demonstrate this behavior.
- 1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed

Core Action 3 (continued)

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

Indicators

F. The teacher establishes a classroom culture in which students choose and use appropriate tools when solving a problem.

Students use appropriate tools strategically when solving a problem.

- 4 The teacher provides students opportunity consistently and most students demonstrate this behavior.
- 3 The teacher provides students opportunity consistently and some students demonstrate this behavior.
- 2 The teacher provides students opportunity inconsistently and few students demonstrate this behavior.
- 1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed

G. The teacher asks students to explain and justify work and provides feedback that helps students revise initial work.

Student work includes revisions, especially revised explanations and justifications.

- 4 The teacher provides students opportunity consistently and most students demonstrate this behavior.
- 3 The teacher provides students opportunity consistently and some students demonstrate this behavior.
- 2 The teacher provides students opportunity inconsistently and few students demonstrate this behavior.
- 1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed

This tool is for teachers, those providing support to teachers, and all educators working to implement the CCSS for Mathematics – it is not designed for use in evaluation. The guide should be used in conjunction with the CCSS Instructional Practice Guide: Supplement for Reflection Over the Course of the Year. Both tools are available at achievethecore.org/instructional-practice.

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For more information on teaching practices, see NCTM’s publication Principles to Actions for eight Mathematics Teaching Practices listed under the principle of Teaching and Learning.