

MATHEMATICS CORE ACTIONS AND GUIDING QUESTIONS

Core Action 1

Lesson content is rigorous and relevant for the level defined by the state-adopted standards.

Indicator A. Instructor presents a lesson with well-defined standards-based goals that focuses on the major work of the level (MWOTL).

Guiding questions:

- Does the lesson focus on the MWOTL?
- Where in the lesson do students engage in a variety of tasks and activities reflective of the standard?
- At different points in the lesson, does the instructor refer to lesson objectives? What does s/he say and do?

(Note: When possible, refer to the lesson plan for information about the lesson's target concepts and skills.)

Indicator B. Instructor presents a lesson that addresses the Standards for Mathematical Practice that are central to the lesson goals and connected to the targeted content.

Guiding questions:

- Do lesson activities encourage students to use the Standards for Mathematical Practice? Note instances and examples throughout the lesson.
- What “instructor moves” are used to bring out these habits of mind in students?

Indicator C. Instructor, when addressing the MWOTL, intentionally targets one or more aspects of rigor as appropriate for the addressed standard(s). Mark the aspect(s) of rigor the lesson addresses:

- Conceptual understanding
- Procedural skill and fluency
- Application

Guiding questions:

- Are students practicing procedural skills? If so, describe them.
- Are activities presented in a real-world context? Or is the lesson introductory so that students are not yet expected to apply their learning?
- After the instructor introduces the lesson content, does s/he provide problems where students can apply the content to a different problem or context?

Core Action 2

Learning activities are cognitively demanding and maximize opportunities for students to master the lesson content.

Indicator A. Instructor presents high-quality questions and tasks to prompt students to discuss their developing thoughts and elaborate on and justify their responses.

Guiding questions:

- Is there a mix of questions that reinforce student understanding of the concepts and skills in the lesson? Note them.
- Does the teacher pose questions that require students to provide evidence and explanation? Or do questions require only a yes or no response?
- Throughout the lesson, are students given time to express their responses and ideas?

Indicator B. Instructor consistently uses explanation, modeling, or examples to make the mathematics of the lesson explicit.

Guiding question:

- Does the instructor use explanation, modeling, examples, or a combination of the three during whole-group discussions?

Indicator C. Instructor provides students with opportunities to work with and practice level-specific problems and exercises.

Guiding questions:

- Do the activities seem appropriate for the level(s) of the students? Note the activities and the level.
- Is there a variety of problems and exercises?

Core Action 3

Lesson content and activities productively engage students.

Indicator A. Students participate actively in sustained class discussions and activities where they build on each other's observations and insights.

Guiding questions:

- Is the lesson dominated by instructor talk or by student talk? Is the lesson dominated by lecture or by discussion? Estimate the minutes of each.
- Do only some, many, most, or all students actively participate in activities? What do you notice about the students? Do they seem bored or animated, or is it hard to tell?
- Are there opportunities for students to collaborate and ask each other questions or add to the discussion? Note instances and examples.

Indicator B. Students have varied opportunities to apply what they are learning in authentic adult-oriented contexts.

Guiding questions:

- Are the activities practical and valuable in real life? Note instances and examples in the lesson.
- Are students asked to solve authentic problems?
- In what ways can you tell that the instructor knows about the lives and interests of the students? Note what is said that indicates this knowledge.

Indicator C. Most students display persistence with tasks and problems.

Guiding questions:

- Do students remain engaged and on task throughout the lesson?
- Does the teacher provide questions and scaffolding so that students productively struggle with the task?
- Do students participate in math activities with attention and effort?
- Do students ask questions of the instructor and their classmates to help them complete tasks?

Core Action 4

Lesson content is intentionally sequenced to develop students' skills and knowledge.

Indicator A. Instructor explicitly relates new mathematical concepts to previous lessons or students' prior knowledge.

Guiding question:

- Does the instructor refer to previous lessons and students' funds of knowledge and experience?

Indicator B. Instructor explicitly relates new mathematical concepts to previous lessons or students' prior knowledge.

Guiding question:

- Does the instructor present the lesson so that the concepts build and flow smoothly?

Indicator C. Instructor ends the class by:

- Reviewing lesson objectives;
- Summarizing student learning with references to student work and discussion; and
- Previewing the next class session and explaining how it will build upon today's activities.

Guiding questions:

- How does the instructor close the class?
- Does the instructor review the lesson objectives?
- What does the instructor say about the next lesson?

Core Action 5

Students' levels of understanding are checked throughout the lesson, and instruction is adjusted accordingly.

Indicator A. Instructor consistently uses informal yet deliberate methods to provide students with prompt, specific feedback to correct misunderstandings and reinforce learning.

Guiding questions:

- How does the instructor check on students' understanding?
- What strategies does the instructor use to correct misunderstandings or reinforce learning? Note instances and examples throughout the lesson.
- When giving feedback, does the instructor use questioning to lead students to answers, or does s/he provide the answers?

Indicator B. Instructor consistently provides strategic supports and scaffolds to students who need them.

Guiding question:

- What supplemental instruction does the instructor provide? Is it needed? Explain.

Indicator C. Instructor provides opportunities for students to evaluate and reflect on their own learning.

Guiding question:

- Does the instructor ask students to reflect on their learning to activate their metacognition at the end of the lesson? How so, and is it effective?