

- A > Equity requires participation:** Explaining one's ideas and hearing the reactions of others promotes learning. Thus in classrooms in which a few students do all the talking, learning opportunities are distributed inequitably. Over time silent students may come to believe they are not expected to talk, and may disengage entirely. When all students are given the time to explain their thinking, a greater investment of every student in the instructional activity is demanded and rewarded, and the opportunity for students to serve as learning resources for each other is maximized.
- B > Logic connects sentences:** A hallmark of the understanding prioritized by the CCSS-M is the ability to use mathematical reasoning to construct and defend an argument (*this is what I did and why it makes sense*). Brief, single-sentence student utterances are generally insufficient for a viable argument.
- C > Understanding each other's reasoning develops reasoning proficiency:** Students learn about mathematics by exploring their own and others' reasoning in problem-solving situations. Actively listening to peers increases the time focused on mathematical thinking and promotes the cognitive flexibility that is highly valued in college and career.
- D > Revising explanations solidifies understanding:** As students become more mathematically proficient and their reasoning improves, they should be able to identify flaws in their own and others' thinking. Revising work as a routine matter leads to better problem solving.
- E > Academic language promotes precise thinking:** Mathematically proficient students comprehend and produce mathematical representations (symbolic expressions, graphs, tables, number lines, etc.) that are embedded in ordinary and academic explanations and justifications. Students comprehend and produce the paragraphs, sentences, phrases and words characteristic of justifications, explanations and word problems typical for their grade level.
- F > ELLs develop language through explanation:** English learners may hesitate to speak in class precisely because their control of English is limited. But practice speaking allows them to become more proficient. Bridging the language barrier is important for ELLs to thrive in the types of classrooms the CCSS-M promotes.
- G > Productive struggle produces growth:** When students persist in making sense of a challenging problem and trying different strategies for solution, they are more likely to learn the mathematics than students who give up quickly or avoid challenge to the greatest extent possible.

The practices are available at corestandards.org

The Common Core State Standards (CCSS) define eight standards for students' Mathematical Practice. You will find evidence of the students' practices by observing their actions and by reviewing their work. This card is intended to focus attention on some of the vital student actions that will be observable in CCSS-M classrooms (see reverse). However, not all standards will be evident at all times or applicable for every activity.

About Looking for Standards in the Mathematics Classroom



THE 5x8 CARD

Student Vital Actions	Principles
All students participate (e.g., boys and girls, ELL and special needs students), not just the hand-raisers.	A > Equity requires participation.
Students say a second sentence (spontaneously or prompted by the teacher or another student) to extend and explain their thinking. CCSS-M practices 1 2 3 6	B > Logic connects sentences.
Students talk about each other's thinking (not just their own). CCSS-M practices 1 2 3 6 7 8	C > Understanding each other's reasoning develops reasoning proficiency.
Students revise their thinking , and their written work includes revised explanations and justifications. CCSS-M practices 1 2 3 4	D > Revising explanations solidifies understanding.
Students look for more precise ways of expressing their thinking, encouraging each other to look for and use academic language . CCSS-M practices 3 6	E > Academic language promotes precise thinking.
English learners produce language that communicates ideas and reasoning, even when that language is imperfect. CCSS-M practices 1 2 3 6	F > ELLs develop language through explanation.
Students engage and persevere at points of difficulty, challenge, or error. CCSS-M practice 1	G > Productive struggle produces growth.

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math.serpmedia.org/5x8card
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