



Using Formative Assessment to Address the Specific Learning Needs of English Language Learners, Low Achieving Students, Students with Disabilities, and High Achieving Students In K-12 MATHEMATICS

For any given activity used to elicit evidence of students' learning listed in the first column, a student could display a behavior described in the second column, and the teacher might try the suggested actions in the third column.

During the following instructional activities (as applicable)	Collected evidence shows ...	Then I might try to ...
<ul style="list-style-type: none"> • Pre-test students on the pre-requisite skills needed for the upcoming unit (i.e., "Show What You Know") • Pre-test students on the content in the upcoming unit (i.e., Unit 2 Test) • Engage students in a daily lesson opening routine (i.e., Number Talks or Warm-up) • Engage students in the unit opening task • Provide direct instruction lesson on a learning target • Facilitate an inquiry lesson on a learning target • Use an active participation strategy to check for understanding • Monitor students engaging in collaborative conversation about a concept, problem or procedure • Engage students in a problem solving task • Engage students in a Formative Assessment Lesson (i.e., Classroom Challenge or Shell Center Lesson) • Administer and collect exit slips • Post-assess students at the end of a period of instruction (i.e., quiz, chapter test, or unit test) 	<p style="text-align: center;"><u>English Language Learners</u></p> <ul style="list-style-type: none"> • Having difficulty comprehending oral and written language (i.e., vocabulary, homonyms, homographs, idioms) • Having more difficulty with word problems than math problems consisting of only numbers and symbols • Having difficulty recognizing a number of words for which a particular operation may be called (i.e., 8 divided by 4 is 2, 2 into 8 is 4) • Having difficulty understanding problem situations with cultural references (e.g., U.S. geography, stock market, baseball, U.S. measurement units) • Fluently producing oral and/or written conversational language, but struggling with academic language • Not participating in oral classroom discussion which requires math academic language 	<p style="text-align: center;"><u>English Language Learners</u></p> <ul style="list-style-type: none"> • Provide oral and written examples when possible • Analyze instructional and student materials for vocabulary that may be challenging for each of the different ELD Levels (Emerging, Expanding, and Bridging) • Teach math vocabulary using a variety of instructional strategies (i.e., examples and non-examples, cognates, and Thinking Maps© and visual representations) • Plan frequent supportive opportunities for students to produce verbal language (i.e., turn and talk, oral rehearsal, repeat the example) • Use flexible grouping (i.e., pairs or small groups; with fluent English speakers and/or students who speak the same native language) • Teach linguistic patterns commonly used in math (i.e., This figure is a ___, because it has ___) • Teach linguistic patterns used in conversation (i.e., I agree with ___, because ___) • Provide an ample amount of wait time after asking a question • Implement strategies listed for other subgroups • For more support, access this link to the new California ELD Standards: http://www.cde.ca.gov/sp/el/er/eldstandards.asp
	<p style="text-align: center;"><u>Low Achieving Students</u></p> <ul style="list-style-type: none"> • Needing pre-requisite skills required for the unit • Needing the math academic vocabulary explained • Needing prior knowledge or experience to understand context in a real world math problem • Performing unsuccessfully on assessment 	<p style="text-align: center;"><u>Low Achieving Students</u></p> <ul style="list-style-type: none"> • Provide alternative teaching strategies and addressing common errors and misconceptions as outlined in the Teachers' Edition • Provide additional background knowledge (i.e., video clips or photos) • Provide academic math vocabulary support • Provide technology • Provide additional time for instruction or access to resources outside of school hours • Provide visual images and/or written steps. • Use flexible grouping (i.e., 1:1, pairs, or small groups; homogeneous or heterogeneous groups) • Implement strategies listed for other subgroups
	<p style="text-align: center;"><u>Students with Disabilities</u></p> <ul style="list-style-type: none"> • Not attempting the task • Oral and written responses do not relate to the task • Having difficulty identifying an approach to solving a problem • Having difficulty retaining information over time • Having difficulty with spatial positioning or alignment • Having difficulty with computation and problem solving • Experiencing success with concrete models but struggling to transfer this knowledge to abstract representations • Understanding concepts but inaccurate with procedures and/or calculations 	<p style="text-align: center;"><u>Students with Disabilities</u></p> <ul style="list-style-type: none"> • Use and connect multiple representations in instruction (i.e., base ten blocks, number lines, math symbols, graphic organizers, real world context and think aloud) • Prompt students to use multiple means of expression (i.e., graph paper, illustrations, equation templates, Rekenrek, grouping containers, equation templates) • Utilize multiple means for student engagement/motivation (i.e., plan for choice opportunities when appropriate, activities based on interest) • Emphasize foundational concepts before introducing procedures • Provide directions in clear language beginning with a verb (i.e., read the problem aloud) • Increase monitoring with specific feedback throughout instruction (i.e., adjust the pacing on instruction based off of the students readiness) • Create opportunities for peer support and collaborative learning • Increase duration and frequency of flexible grouping (i.e., 1:1, pairs, or small groups; homogeneous or heterogeneous groups)



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	<p><u>High Achieving Students</u></p> <ul style="list-style-type: none"> • Have a keen awareness and curiosity for quantitative information in the world around them • See math and structure in a variety of situations • Relate mathematical concepts within and across content areas and real-life situations • Know KUDS prior to instruction and/or grasp mathematical concepts and strategies quickly, with good retention • Complete tasks earlier than their peers • Think logically and symbolically about quantitative, spatial, and abstract relationships at times without instruction • Recognize, create and extend patterns • Interpret, predict, and analyze mathematical situations and problems ahead of grade level peers • Develops more sophisticated mathematical models than their peers to analyze predict and resolve real-world issues and challenges • Apply estimation and mental computation strategies to work more efficiently • Solve problems with multiple and/or alternative solutions • Skip over steps and be unable to explain how they arrived at the correct answer to a problem • Arrive at the correct answer by following an unmarked thinking path; take risks with mathematical concepts and strategies • Work, communicate, and justify mathematical concepts in creative and intuitive ways • Persist in their search for solutions to complex, "messy," or "ill-defined" tasks • Organize information and data in a variety of ways 	<p><u>High Achieving Students</u></p> <ul style="list-style-type: none"> • Provide accommodations and/or modifications as identified in the student(s)' Individualized Education Program (IEP) • Provide a calculator • Implement strategies listed for other subgroups • Investigate alternative support by referring to Universal Design for Learning (UDL) here: http://www.cast.org/udl/ <p><u>High Achieving Students</u></p> <ul style="list-style-type: none"> • Reinforce, replace or extend concepts and skills based on formative assessments • Utilize flexible grouping to provide students with appropriate learning experiences relative to their attainment of grade level standards and learning targets • Provide options for students who have already met learning targets or could master them at a faster pace • Provide opportunities for mathematical communication with intellectual peers and mentors • Provide advanced level resources • Implement more inquiry based models of teaching: advance organizer, concept attainment, concept formation, deductive reasoning, group investigation and creative problem solving • Provide more complex mathematical situations and challenges • Relate written and oral interpretations and responses to universal concepts and big ideas • Utilize Thinking Prompts (Depth, Complexity and the Content Imperative Prompts), universal concepts and key words to explore, analyze, interpret and justify mathematical reasoning • Generate Depth and Complexity pathways to inquire into teacher and student generated questions, support reasoning, communication and reflection • Provide opportunities for teacher facilitated extensions and independent study • Apply Thinking Like a Disciplinarian as a lens to solving real-world issues and challenges, e.g. economist, sociologist, mathematician, architect, artist, engineer, urban planner, and scientist • Ask students to articulate and support multiple (and contradictory) perspectives • Apply Creative Problem Solving techniques • Emphasize problem posing to develop creativity; extend problems to other contexts • Incorporate written reflection to foster the link between mental calculations and written mathematics • Build on students' interests as a means of deepening understanding