

High Leverage Practices in Mathematics

Strategy	Definition	Purpose
Clear goals (including vocabulary)	<p>Write goal(s) for the day's lesson and key vocabulary words that you, the teacher, and the students will work to include during whole-class and small-group conversations.</p> <ul style="list-style-type: none"> • What will the students understand better at the end of the lesson than they do at the start? • What questions is the lesson designed to help students answer? • Are there particular words that you and the students will purposely use during the lesson? 	<p>Lessons are more focused when both the teacher and the students know what questions the work is designed to consider.</p> <p>Making vocabulary available and modeling its pronunciation and usage, encourages students to move from simply engaging in social discourse to learning the practices of academic, math -specific discourse. Discourse practices should include written language, oral, gestures, objects, and other mathematical representations.</p>
Press for Justification	<p>Students will often include justifications with their answers when that becomes the norms of practice in a classroom.</p> <ul style="list-style-type: none"> • Ask why rather than how or what the student did to solve a problem. • Give wait time after asking a question and also after getting a student response. • Assess the cognitive demand of the task and determine what scaffolding might be needed and plan scaffolding that won't diminish the cognitive demand of the task when a student is struggling. 	<p>Students show higher levels of retention over time when they have been pressed to justify their methods of solution and the appropriateness of their answers.</p> <p>Additionally, slowing down explanations gives students more access to the thinking of their peers and invites them to compare and contrast various strategies.</p>

<p>Promote rich and engaging discourse</p>	<p>Provide students with Private Think Time during which students think about and write their initial work on a problem.</p> <p>Have students share with a partner or talk within a group.</p> <p>To encourage careful listening to their partner's sharing, hold them accountable by asking one from each set of partners to rise and share what they learned from their partner or from their group.</p> <ul style="list-style-type: none"> • A/B partners • Turn-and-talk 	<p>These practices encourage students to construct their own understanding and pay attention to their initial instincts in terms of solving a problem.</p> <p>Additionally, by giving individuals time to begin work on their own, it is more likely that a wider variety of approaches will surface both within the group and in the class as a whole.</p> <p>Reporting on the approaches shared by others encourages careful listening within the group. This is more likely to happen when the teacher alerts students that they will be expected to share the thinking of their partner or group members.</p>
<p>Use public records</p>	<p>Make decisions about when student work will be shared using a document camera and when it should become part of the public record in the classroom.</p> <p>Provide at least two types of posters:</p> <ul style="list-style-type: none"> • Records for support • Records of student thinking 	<p>Public records provide students with valuable resources as they are developing new skills and processes.</p> <p>Displaying student thinking honors their contributions to advancing mathematical thinking and likely will provide new ways of considering related ideas.</p>
<p>Journal writes</p>	<p>Use both as record of class work and also as a record of student's progress with ideas.</p> <p>Include:</p> <ul style="list-style-type: none"> • Key vocabulary • Regular exit tasks to learn about each student's progress on the goal of the day. <p>Possible prompts:</p> <ul style="list-style-type: none"> • What makes sense to you? • What are you still puzzling about? • What is helping you make sense of the mathematics? • What is getting in the way of your making progress on the mathematics? 	<p>Journals provide an opportunity for students and teachers to learn about the progress that each student is making on the Big Ideas of the course.</p> <p>Journals also allow for more personal exchanges between students and a teacher than is often available during a regular class period.</p>