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Doing the math: supporting student justifications.

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Summary: Teachers have found that engaging students in justification can help students deepen and retain mathematical knowledge, gain a greater sense of ownership over the material, and improve communication and representation skills. Student engagement in a justification activity can also lead to more equitable learning outcomes among diverse student populations. However, enacting lessons that help support student justifications can be challenging. One difficulty in implementing such tasks is that they are inherently open-ended; it takes careful planning using multiple strategies to guide students toward the intended mathematical goal. To better understand how to support student justifications within middle school math classrooms, a team of researchers and twelve middle school teachers collaborated on the Justification and Argumentation: Growing Understanding of Algebraic Reasoning (JAGUAR) project. Within JAGUAR, the authors developed and refined strategies to promote student justifications. These strategies included the deliberate setup of the task, an explicit identification of specialized vocabulary, and careful listening to student thinking, thus creating many informal opportunities for students to exchange ideas and encouraging the use of multiple representations. They found that one key to a better implementation of justification tasks involved teachers “doing the math” as part of the lesson-planning process. Doing the Math was a part of intensive lesson planning in which teachers completed a detailed investigation of the mathematics in a task. The authors saw “doing the math” as an important part of this type of lesson planning. In this article, they illustrate doing the math with the Hexagon task and conclude with a discussion of the benefits for both students and teachers that they have experienced. (ERIC)

Classification: H23 E53

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<http://www.nctm.org/Publications/Mathematics-Teaching-in-Middle-School/2016/Vol21/Issue7/Doing-the-Math.-Supporting-Student-Justifications/>