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Best Practice: Classroom Teachers Who Publish

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groups must first determine the individual responsibilities that must be performed in order to successfully complete the design. The students then assign/accept these specific responsibilities and then sign a contract. In addition, the teacher reviews the responsibilities with the students and then signs the contract. While students are working on the project, the teacher periodically checks with the groups to see how each student is performing relative to their responsibilities.

Paul Reynolds, a technology teacher at Bingham High School in Utah, conducted a study with his students and found that when students worked in groups where individual accountability had been formally structured into the activity (i.e., team contracts), the students had higher levels of group success and individual learning, and more positive perceptions of other members of the group.

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Best Practice: *Classroom Teachers Who Publish*

Best Practice Nominator: Philip A. Reed

Description of Best Practice: Publications by classroom teachers are vital to any education field because teachers are always interacting with students and can provide invaluable feedback. However, editors and individuals on editorial boards consistently say that many teachers do not publish because they are not confident with their writing abilities or do not see publishing as a rewarding professional experience. Additionally, many teachers do not realize that publications often count toward recertification points. These issues can be overcome by showing teachers what works. For example, by starting in state publications and working toward more prestigious publications, teachers can build their writing skills and self-confidence. Stephen Baird regularly publishes articles in *The Technology Teacher* (TTT) and was recently appointed to the TTT editorial board. He has found publishing very personally and professionally rewarding and has developed a close tie between his writing and teaching. By making this link, he is in a great position to help other teachers share their work through publications.

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Best Practice: *Enhancing the Instructional Program*

Best Practice Nominator: Marie Hoepfl

Description of Best Practice: The competitive events that are part of the Technology Student Association (TSA) program represent powerful instructional activities that can be used to supplement an instructional program, even without student participation in the TSA competitions. With skillful blending of TSA activities in the classroom, however, it is possible to accomplish two goals: (a) incorporate powerful learning activities that reinforce the conceptual understandings contained in the course of study, and (b) prepare students for successful participation in TSA events.

Kim Kulawik's middle school students at Mooresville Middle School have participated in regional, state, and national TSA conferences for many years. The display case outside his classroom is full of trophies and it bears testimony to the students' success at these events. More important than trophies, however, is the way Kim has used these activities as learning opportunities. For example, one unit of instruction in Kim's classroom focuses on "simple and motorized machines." In this unit, students learn fundamentals of levers, gears, pulleys, and wheels and axles, and they go through a various exercises that allow them to experience these simple machines in motorized and non-motorized applications. Some of the students then make use of this and other knowledge in the design, creation, and testing of motorized vehicles that will be part of the "Transportation Challenge" competition for the middle grades at a TSA conference. In the process, students experiment with different gear configurations, maximizing their design for the particular challenge presented for that year (e.g., climbing ability, speed, etc.). They experiment with the use of various materials for constructing the vehicle's body and wheel coverings. This activity challenges the students to find materials that have the best strength, traction, and other characteristics. The goal is not winning the event, per se, but applying knowledge of processes, tools, and materials to find the best solution to this particular challenge.

The Transportation Challenge is just one example of how TSA events can be used to provide what might be called "authentic" contexts for concept learning. Over the years Kim has used a variety of structural testing challenges with his students to help them understand the principles of compression, tension, triangulation, etc. One great apparatus he employs is a handmade structures tester that provides a very graphic illustration of the principle of leverage (as opposed to the more "black box" nature of the vendor-distributed structure testing devices). Another tool that Kim uses with his students is to videotape structure testing, and then analyze the footage frame by frame with students to evaluate the cause of structure failure. The recent completion of the TechKnow materials by Richard Peterson and colleagues at North Carolina State University (Kim was one of