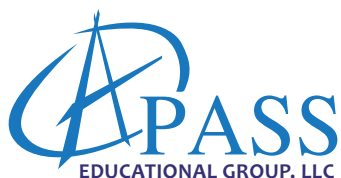# Moving Beyond Worksheets: Activities and Exercises That Promote Thinking

by Robert Weisser

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Teaching that emphasizes active engagement helps students process and retain information. It leads to self-questioning, deeper thinking, and problem solving. Engagement strategies like repetition, trial and error, and posing questions move the brain into active and constructive learning. And such activities can lead to higher student achievement.

— Peter Lorain, former president of the National Middle School Association

A fundamental goal of teaching is to inspire students to engage in their learning. Students who are actively engaged gain a deeper understanding of a subject than those who are passive recipients. To capture the minds of their students, what kinds of changes must teachers make in their lessons?

Natasha Sumner, an educator and blogger, wrote in a March 2016 post about how her thoughts on teaching grammar and mechanics in the primary grades changed after an early revelatory experience. She often used worksheets, depended on repetition to cement the knowledge for her students, and added techniques that she thought would make the lesson interesting. But when she cheerfully asked her students, "Isn't this fun?" a number of them responded negatively.

Sumner recognized that, rather than repetition with generic sentences, students need real opportunities to apply their learning in a context meaningful to them. She recalls, "I found that when I … provided authentic learning opportunities, students were engaged and retained what they learned."

"In my opinion," Sumner says, "worksheets are suitable, helpful resources for introducing skills and supplementing additional practice. However, I don't believe they should be used in isolation. Using only this format could leave students, who might otherwise understand the concept if it were addressed in multiple formats, in the dust."

She goes on to list some techniques for taking worksheet exercises out of isolation and making them more relevant to students:

- **In context.** After teaching a mini lesson on the skill, students identify ways to incorporate the skill in their own writing (a writer's notebook) and edit their work if needed.

- **Grammar/mechanics hunt.** Students search for examples of the grammar skill in the novels they're reading. Students can work collaboratively or have a friendly competition.

- **Student choice.** After a mini lesson, students can choose how they'd like to showcase their understanding of the skill. For instance, a student may create a song, poem, illustration, or written example. Several wonderful storytelling apps currently

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on the market allow students to explain using a technological format.

Repetitive exercises show up in all areas of curriculum, and Sumner's judgment about their use will resonate among teachers of math, science, history, and languages. Relying on technology alone—e.g., simply transferring a worksheet to a computer screen—is not an effective way to engage young intellects. The exercises and activities themselves must be upgraded to challenge students and provoke them to use their brains.

Gamification

The PBS Kids website (http://pbskids.org/) hosts a number of games that young students can play to reinforce concepts in multiple subjects. For instance, for a geography lesson on the location of the 50 United States, students can play *State Stumper*. This exercise requires students to drag and drop each state into its proper place on the map. As each state appears in the databank, its name is displayed prominently on screen and is pronounced clearly. When the student drags the state outline to the correct spot, the game gives positive congratulations.
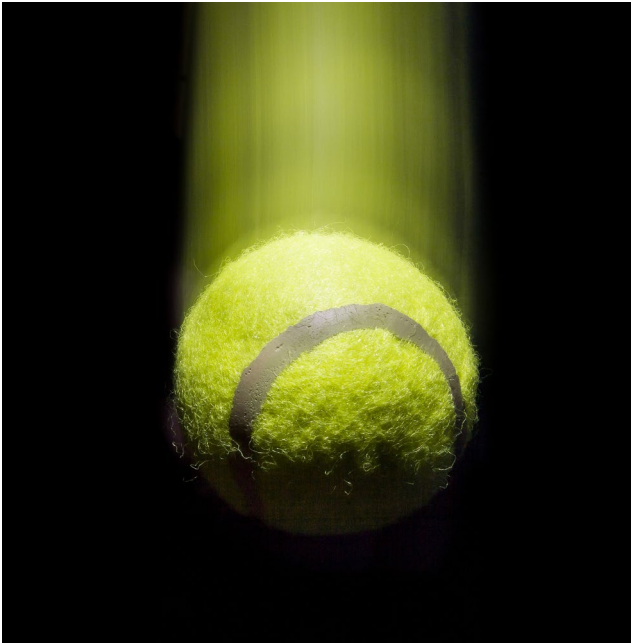
Using gaming techniques does not have to be restricted to technology-enhanced activities. Reverse question-and-answer exercises such as *Jeopardy*-type games allow students to showcase their knowledge. And because the "answer" is a question, students may take a number of innovative paths to provide satisfactory wording.

Each of these games is, at heart, a matching, multiple-choice, or memory exercise. Yet the environment, speed, graphics, and chance to "win" induce students to apply knowledge over and over, helping them retain the details and concepts.

Personalization

Students can not only apply what they have learned to improve their own work, but they can actually search for details in their environment to help create their own learning. A simple example of this occurs in a math exercise featuring calculations using the ratio of the circumference to the diameter of a circle (π). Instead of being told that π = 3.14159265 ..., students can experiment by measuring the circumference and diameter of various-sized circles that they see around them. (Wrapping a string around a circular object and then measuring the string's length gives a tolerable approximation of circumference.) This lets students explore the basics of mathematics for themselves, giving them a real-life experience with the connections between geometric shapes.

A similar student-driven activity demonstrates the acceleration of a falling object due to gravity. A simple Internet search uncovers the value as 9.8 m/s^2, but the learning that occurs from using the scientific method to set up the experiment, arrange the time measurement strategy, calculate the value of the acceleration, and duplicate the results to achieve certainty is much more memorable for any group of budding Isaac Newtons.

Application

One of the methods Sumner uses to get students to apply new skills is to have them read their own work with an eye toward finding and correcting errors. Instead of grinding through generic sentences trying to discern incorrectly placed apostrophes, students become invested in the learning because their objective is to make their personal writing better.

Students can also choose their own vehicles to broaden their understanding and demonstrate what they learned. Sumner mentions creating a song, poem, or illustration that exemplifies the pertinent learning objective. And in a separate post (April 2016), she discusses having students use a movie-making app to create a multimedia "book trailer." As in the traditional book report, students must incorporate character, setting, plot, and hints of themes so that the audience will want to read the book themselves. The movie-making app (such as iMovie) allows students to add music, pictures, and other effects.

The learning that is achieved in this activity goes well beyond determining plot and theme, understanding character, and summarizing text. Working in groups, students use storyboards to organize their book trailers, choose music that relates to the genre and mood, decide how to lead the audience to the climactic scene of the story, and provide their evaluation of the work.

Conclusion

When students are actively engaged in their learning, they process and retain information and use higher-order thinking. Teachers who design exercises and activities that promote active engagement reinforce student learning, keep students interested and directed, and make learning relevant and fun. Having success with these activities can provide students with the confidence and desire to explore other aspects of the world around them.

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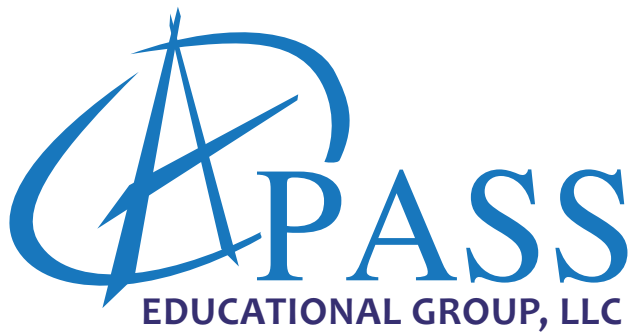
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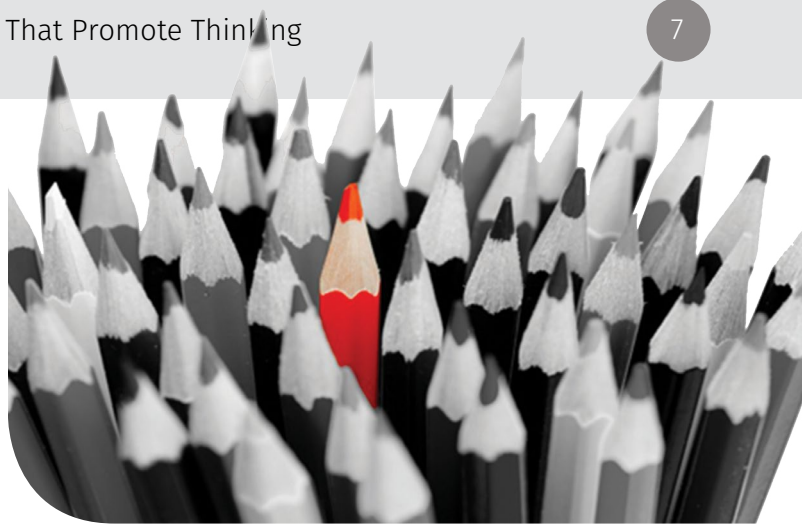www.phi.co.in

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