

## **Classroom Embedded Assessments: What are they and why are they in the system?**

The research is clear—the interactions of the teacher with students around the ‘content’ is the most influential factor for student learning and achievement. No other factor is as significant—not the program purchased, the interim or online assessment system purchased, the location of the school, not even the demographics of the student body. Whether you are reading John Hattie, Richard Elmore, Dylan Wiliam, Katie Haycock, Robert Marzano (this list could go on and on), they all agree.

Further, reviews of the research on the effects of classroom assessment—that is, assessments done seamlessly with instruction that provide actionable feedback to both students about their learning (while they can still act on it) and teachers about their instruction—indicate that it might be one of the most powerful weapons in a teacher's arsenal. To illustrate, as a result of a synthesis of more than 250 studies, Paul Black and Dylan Wiliam (1998) describe the impact of *effective* classroom assessment in the following way:

*The research reported here shows conclusively that formative assessment does improve learning. The gains in achievement appear to be quite considerable, and as noted earlier, amongst the largest ever reported for educational interventions. As an illustration of just how big these gains are, an effect size of 0.7 [see Technical Note 1.2 for a description of an effect size], if it could be achieved on a nationwide scale, would be equivalent to raising the mathematics attainment score of an “average” country like England, New Zealand or the United States into the “top five” after the Pacific rim countries of Singapore, Korea, Japan and Hong Kong. (p. 61)*

In Kentucky’s science assessment system, primary emphasis is on what happens each day in each science learning experience. This is not dependent on external materials or resources, but rather on the expertise, effectiveness, and commitment of each teacher to strive to continually learn about their students, the standards they are teaching, and their own practices for collecting relevant evidence of learning and providing actionable feedback to students so that learning improves and deepens.

Kentucky’s definition of formative assessment (SB 1, 2009) is: *a process used by teachers and students during instruction to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes. This process is manifested in instructional practices that both teachers and students engage in routinely. [Beware of products labeled or marketed as ‘formative.’ No task or test or item is inherently formative (or summative for that matter). It is the way it is USED – the process – that determines the appropriate label.]* The classroom embedded assessment component of the system is the manifestation of this definition of formative assessment.

### **What should we be doing now?**

- Teach science in each and every grade, K-high school, to ensure each student has the opportunity to learn, think, solve problems, and design solutions using scientific principles and practices.
- Create time for teachers to collaborate on the design of classroom tasks that will make visible student knowledge and skills based on Kentucky’s Academic Standards for Science.
- Ensure that students are receiving specific and actionable feedback on their learning while they are still learning – and before grades are assigned – so they continue to engage in science learning experiences.