**Ingham ISD Math & Science Update for February, 2013**

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**How to take control of your science achievement**

Science MEAP scores are very low across the state. It may not be because your students aren't learning science.

I'm not usually one to ignore test results and blame the tests, but I do wonder whether anyone, even adults, could answer abstract questions on something they learned 3 years ago and never used in the intervening two years. That 3 year span is for the 8th grade MEAP test – children have a 5 year span when they take the 5th grade MEAP test.

A more realistic way of showing what your students learn in science is to give them authentic assessments on a regular basis while they are learning each topic. Common unit assessments, projects and written essays are much better ways to judge what your students learn.

Cumulative assessments are an option, but the period of time over which you expect young children to remember material that they don't use has to be limited.

How does this help you with your MEAP scores? They're still reported in the newspaper and used in some ways for accountability.

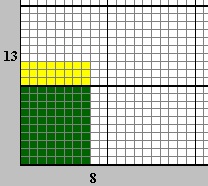
What would your community think if you reported two sets of scores, those provided by MDE on the MEAP, and locally-generated scores that show what your students are currently doing in exciting and motivational science classes? At least that would give readers something to think about as they look at your science achievement.

If you feel you need external validation of your assessments, we could develop common grade level assessments across the ISD, based on the Next Generation Science Standards. This could be a stimulating way for teachers to learn more about the new standards and share ideas across districts to improve grade level science teaching.

I'm suggesting that we take control of how we assess science learning and not let the MEAP define our good programs. What do you think?

**Remember FOIL? Rigor and understanding in the Common Core**

Rigor and understanding are two sides of the same coin. Some would argue that rigor only comes when we ask students to go to the level of deep understanding. In general, to understand something means to be able to explain the concepts and processes behind it, and to see connections between it and other things one knows.

The Common Core document says this: “These Standards define what students should understand and be able to do in their study of mathematics. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student’s mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as (*a* + *b*)(*x* + *y*) and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding (*a* + *b* + *c*)(*x* + *y*).”

Are you familiar with the “mnemonic device” they’re talking about? It’s FOIL – “first, outer, inner, last.” It’s a method for multiplying binomials:   
(*a* + *b*)(*x* + *y*) = *ax* + *ay* + *bx* + *by*. The concept behind it is the distributive property. A simple example is that 13 x 8 is the same as (10 x 8) + (3 x 8) (breaking the 13 into 10+3). This simplifies the calculation (80 + 24) and makes a nice connection to the area model for multiplication:

Everything we ask students to learn has an “understanding” component to it. Make sure that teachers focus on this part as well as the procedural part.

Please share this update with principals, curriculum chairs and teachers. If you have any questions or need any help in supporting mathematics or science work, please contact Theron Blakeslee at 517-244-1201 or [tblakesl@inghamisd.org](https://ch1prd0202.outlook.com/owa/redir.aspx?C=Hm-TSOtFSEKrrfdc291aC4LXTLuNXM4ImoizBSNOUwioAY1LwDiioi1uK6ikPxQZYz-Axu8aoj0.&URL=mailto%3atblakesl%40inghamisd.org).