



Published monthly by
ISBE
Content Specialists

Ninth through
Twelfth Grade

Inside this issue:

Assessment	1
ELA	2
Math	3
Science	4
Social Studies	5
Learning Support	6

If you have any suggestions, questions or concerns, click [HERE](#) to contact our editors.

The Teachers' Newsletter

from Illinois Classrooms in Action

Grade band lessons, ideas and information
Focus: Mathematics

Volume VII Issue 7

March 2019

Unobtrusive Assessment

Traditional assessment has been of the obtrusive variety, meaning learning stops for the assessment to occur. This is the typical Friday quiz, unit test and yearly assessment type of assessment. It is generally treated as summative in nature, in that it does not usually drive learning forward, but rather is an assessment to determine what the student has learned.

Research shows that unobtrusive assessment, that which fits in with the learning, is a preferred method of assessment. It

gives the teacher information to drive their further instruction and informs the student on what still needs to be learned.

Observing students while they work or have a discussion is a type of unobtrusive assessment. In mathematics, asking the student to explain their thinking can be a preferred way to assess their understanding of the mathematics rather than just having them select an answer from a list of choices.

White boards are another method of unobtrusive assessment. Students can

solve a problem and hold up their results. The teacher can easily assess who seems comfortable with the task and who needs further learning to occur.

Hands on learning, such as working with manipulatives, or discussing a problem with multiple solutions, can lead to greater learning. All of these can be evaluated through unobtrusive assessment.

You can find more information on unobtrusive assessment in [A School Leader's Guide to Standards-based Grading](#) by Tammy Heflebower.

SAT and PSAT Dates

SAT® for Grade 11*

Initial Test Date: Tuesday, April 9, 2019
 Makeup Test Date: Tuesday, April 23, 2019
 Accommodated Test Window: April 9-23, 2019 *

*Current grade 12 students without a grade 11 score or qualifying exemption from spring 2017 or spring 2018 will

PSAT™/SAT for Grade 10

Initial Test Date: April 9, 10, or 11, 2019**
 Makeup Test Window: April 10-23, 2019***
 Accommodated Test Window: April 9-23, 2019

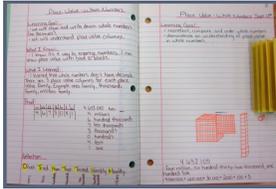
***For only spring 2019, the following flexibility is allowed: PSAT™ 10 makeup tests may be administered on any days from April 10-23, 2019

PSAT™8/9 for Grade

Initial Test Date: April 9, 10, or 11, 2019
 ** Makeup Test Window: April 10-23, 2019
 *** Accommodated Test Window: April 9-23, 2019

***For only spring 2019, the following flexibility is allowed: PSAT™ 8/9 makeup tests may be administered on

Literacy and Mathematical Practice Connections



Literacy skills are essential for success across all content areas.

The Standards for Mathematical Practice describe ways students engage with mathematical content as they progress from kindergarten through grade twelve. There are many components of literacy that permeate these standards.

Reading comprehension strategies that also connect to the Mathematical Practices (MP) include:

- Predict (MP 1, 3, 5)
- Draw conclusions (MP 3, 4, 7, 8)
- Use of context clues (MP 3, 4)
- Summarize (MP 7)
- Judge text critically (MP 3)
- Use models, charts, graphs, diagrams, and

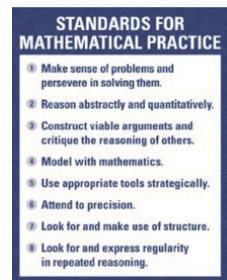
- symbols to interpret information (MP 1, 4)
- Gather, evaluate, and synthesize data (MP 1,2,3)
- Utilize context clues (MP 1, 3, 6)
- Use content vocabulary (MP 6)
- Decode and encode symbolic meaning (MP 6)

Students can apply writing skills and strategies effectively for different purposes. The application of written communication is embedded within the Standards for Mathematical Practice to develop students' mathematical proficiency. Some strategies include:

- Compare and contrast

(MP 3, 5)

- Create an effective response to answer a problem (MP 1, 3)
- Use appropriate tools to explore and deepen understanding (MP 1, 5)
- Use appropriate symbols to illustrate concepts (MP 1, 4)
- Analyze models, charts, graphs, diagrams, and symbols to enhance communication (MP 1, 2, 3, 4)
- Develop, evaluate, and



An Intersection of Literacy and Mathematics

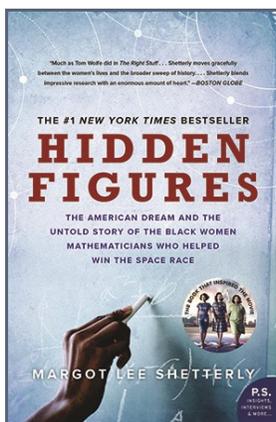
The Mathical Book Prize aims to inspire a love of mathematics in the everyday world in children of all ages. Each year's winners and honor books join a selective and ever-growing list of new and previously published fiction and non-fiction titles for youth.

These titles are as varied as

the intersection between literature and mathematics — that is to say, they encompass picture books, novels, poetry collections, puzzle books, biographies, and more!

The Mathical selection panel is drawn from librarians, teachers, mathematicians, early

childhood experts, and others. The jury selects winners in five grade-level categories: PreK, K-2, 3-5, 6-8, and 9-12. Click [here](#) for a list of award winners.



Shifting the Culture of Mathematics

The culture of mathematics in American classrooms needs to experience a dramatic shift. Here are four important things to remember as we integrate mathematics across subject areas. If we work together to change how mathematics is perceived, our students will grow into life-long learners and problem solvers.

1. Celebrate mathematics as a useful tool in making sense of the world.

Provide opportunities for students to make measurements, understand patterns, analyze data, and quantify

relationships in all subjects—making mathematics relevant to students outside of the math classroom.

2. Facilitate productive struggle.

In America, we equate completing something quickly and easily with being smart. Often when students struggle with a skill, they write it off as something they just aren't good at. Encourage students by recognizing learning happens through hard work and perseverance.

3. Recognize that there are many different ways to arrive at the solution.

The journey to the answer and the mathematical reasoning students employ along the way is often as valuable as the answer itself. Validate students unique strategies for arriving at the answer.

4. Create a space where it is safe to make mistakes.

Research shows that mistakes cause our brains to grow. Spend time in class celebrating mistakes, analyzing the reasoning that led to the mistake, and how to correct the error. *Mistakes Grow Your Brain - YouCubed.* (2019). *YouCubed.* Retrieved 26 February 2019, from <https://www.youcubed.org/evidence/mistakes-grow-brain/>

Math helps us understand the world—and we use the world to understand math.

Understanding the World Through Math. (2019). *Asia Society.* Retrieved 26 February 2019, from <https://asiasociety.org/education/understanding-world-through-math>

More Than Just the Answer

This [article](#), by Adam Sarli, discusses the cultural shift mentioned above—Recognize that there are many different ways to arrive at the solution. Sarli describes that when he began his journey as an educator he “judged a lesson to be successful after seeing how many students got the right answer.” He slowly realized that correct answers did not correlate to deep understanding. The article goes on to describe how he has shifted to focusing on the strategies and mathematical reasoning used by students. He illustrates this shift through the example used with his 7th graders, 4 - 8, sharing many of the different strategies offered up by his students and the mathematical discourse he facilitated around the problem. He concludes the article by saying, “To help our students really “get it,” I’d choose methods over answers any day.” *Math Is a Subject with a Right Answer; the Goal Is to Get It - National Council of Teachers of Mathematics.* (2019). *Nctm.org.* Retrieved 26 February 2019, from <https://www.nctm.org/Publications/Mathematics-Teaching-in-Middle-School/Blog/Math-Is-a-Subject-with-a-Right-Answer;-the-Goal-Is-to-Get-It/>

Join us at one of our upcoming free, virtual #ILMathCom events!

Check out www.mathteachersinaction.org/ilmathcom.html to access the complete listing of upcoming events, register for #ILMathCom events, or to watch the recordings of past events.



Science and Mathematics Integration

The National Research Council's *A Framework for K-12 Science Education* states that, "Increasing students' familiarity with the role of mathematics in science is central to developing a deeper understanding of how science works." The Framework goes on to describe the eight Science and Engineering Practices in which students should use

and develop in quality science instructional materials. Two of these practices, Analyzing and Interpreting data and Using Mathematical and Computational Thinking, explicitly describe mathematics practices that students should use to figure and explain phenomenon. In fact, the NGSS is designed to mirror

the mathematics content outlined by the Common Core Standards at each grade level. Because of this, science lessons can be an effective and engaging way to apply and reinforce the concepts.

"Increasing students' familiarity with the role of mathematics in science is central to developing a deeper understanding of how science works."
~*A Framework for K-12 Science Education*

What Mathematics Skills Should Students in High School Use?

The NSTA has organized a progression of specific elements for each Science and Engineering Practice in the document found here: <http://nsta.org/pdfs/ngss/resources/MatrixForK-12ProgressionOfScienceAndEngineeringPracticesIn>

[NGSS.8.14.14.pdf](#). Within this matrix you can find the specific ways that high school students should be Analyzing and Interpreting Data and Using Mathematical and Computational Thinking in science.

**#ILSciCom
Returns in April!**

Visit

www.scienceteachersinaction.org/ilscicom.html

for more information

Resources for Science and Mathematics Integration

A resource for classroom activities that provide chances for students to Analyze and Interpret Data and Use Mathematical and Computational Thinking can be found at datanuggets.org. Data Nuggets provides free classroom activities that are co-designed by scientists and teachers in which

students use authentic data to identify hypotheses and predictions, visualize and interpret data, make evidence based claims, and ask their own questions for future research. Activities can be found for all grade levels. Each activity includes a description of the research and of the

contributing scientist, the data from their research, and graphing and analyzing activities. Each lesson is leveled based on students prior experience.

DATA *Nuggets*

Bridging Social Science and Mathematics

At first glance, there seems to be little connection between the math and social science standards. However, one could argue that there is an increased connection with the addition of the financial literacy component in the new Illinois Learning Standards for Social Science. The previous standards did include an economics strand but did not include or place an emphasis on the financial literacy skills that will become important to students as they become adults.

The financial literacy standards place an emphasis on skills and concepts students need to understand to successfully manage their

finances and navigate topics like credit, loans, and interest in adulthood. While these topics may not include all of the complex upper-level math students are engaging in at the middle and high school levels, students will still have the opportunity to explore the real-world applications of math through financial literacy.

It is important that social science courses incorporate the disciplinary concept of economics and financial literacy into their curriculum where applicable. Providing students the opportunity to increase their financial literacy skills will have a long-lasting impact on their future.

The number one problem in today's generation and economy is the lack of financial literacy.

Alan Greenspan

Economics and Financial Literacy Resources

The prospect of teaching economics and financial literacy concepts in the classroom is sometimes quite overwhelming and unfamiliar to educators. Many social science educators may have very little background in these topics. However, no matter one's comfort level, educators should strive to include a variety of disciplinary concepts from the standards in social science courses.

There are many *FREE* resources that can support educators with professional learning, lesson ideas, and even games and activities to incorporate into the classroom. The following websites provide resources to support educators in the areas of economics and financial literacy:

- ◆ [EconEd at the St. Louis Fed](#)—This site provides lesson and unit ideas that can be sorted by grade band and/or topic. The site also provides access to EconLowdown which provides award-winning FREE online courses and videos for use in K-12 and college classrooms. Check out the Teacher Ed button for professional development opportunities!

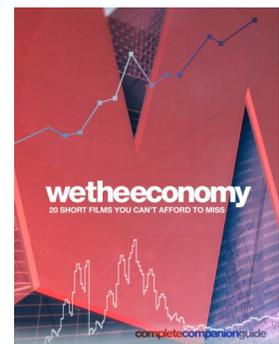
econlowdown[®]
click. teach. engage.

- ◆ [Econ Illinois](#)—Econ Illinois offers many programs and workshops for Illinois teachers to integrate the teaching of economics and personal finance across the curriculum in grades K-12. They also include access to their four key signature programs: The Stock Market Game, Economics Concepts Poster Contest, Illinois Econ Challenge, and the Illinois Personal Finance Challenge. Their Professional Development tab provides information about conferences and workshops across Illinois.

- ◆ [WE THE ECONOMY](#)—*WE THE ECONOMY: 20 Short Films You Can't Afford to Miss* aims to drive awareness and establish a better understanding of the U.S. economy through a series of 5-8 minute films. As a companion to the series they have a Program and Discussion Guide designed to assist educators discuss the films and the economy both in and out of the classroom. Use the Guide to facilitate discussions around the films, spark social media conversations, and engage students with the topics on a deeper level. The Guide is appropriate for use as a classroom tool across multiple grade levels 9th and up.



A program of the SIFMA Foundation.



Social Emotional Learning within Mathematics

Teaching and Learning Supports



Ninth through Twelfth Grade

Multiple student communication skills listed in the Illinois Math Practice 3 standard are able to be aligned to (developmentally appropriate) Illinois Social Emotional Learning standards. Two classroom in action designed tools are highlighted below to assist classroom teaching and learning for these skills.

Illinois Math Practice 3	Illinois SEL standards/benchmarks
Construct viable arguments and critique the reasoning of others.	Analyze similarities and differences between one's own and others' perspectives. (2A.4a)
Justify conclusions, communicate them to others, and respond to the arguments of others.	Use conversation skills to understand others' feelings and perspectives. (2A.4b)
Listen/read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.	Evaluate one's contribution in groups as a member and leader. (2C.4b)

Tools to support both MP3 and SEL skills

Collegial Discussion Guide

Conversation Cubes

Free download at:

Available at:

<http://bit.ly/ILSELdiscguide>

<http://bit.ly/CIOnlinestore>

Collegial Discussion

Common Core State Standards for Speaking and Listening Item 1 (CCSS-SL.1) calls for students to initiate and participate effectively in a range of collaborating discussions with diverse partners. They are to work with peers to promote civil, democratic discussion and decision-making, set clear goals and deadlines, and establish individual roles as needed. CCSS-SL.1 also calls for students to follow rules for collegial discussions. Collegial discussions are mutually respectful conversations between student colleagues in a group or classroom environment.

Discussion Guidelines and Skills	Discussion Sentence Stems.....
<p>When speaking, participants strive to</p> <ul style="list-style-type: none"> sustain a main idea be original with interesting, thought-provoking ideas. have quality in their comments. include textual references— the more specific the quotation, with reference to page and paragraph numbers, the better. make reference to other works. maintain the accuracy of their comments. question for greater understanding. <p>When listening, participants strive to</p> <ul style="list-style-type: none"> listen to other students and not be "checked out". see how the comments fit...follow the flow of the discussion. be able to reference previous comments. listen for greater understanding. wait patiently for the speaker to finish before sharing ideas. <p>In a collegial conversation, participants</p> <ul style="list-style-type: none"> are consistent in participation. show leadership— students help others to enter the discussion. show empathy. have the ability to learn and adjust to the dynamics of the class. incorporate politeness and respect for all members of the class. maintain eye contact and call others by their names. show patience with the process. (It takes some time to develop a group dynamic where everyone feels at ease.) demonstrate preparedness— books and articles are marked, responses are written, questions are prepared. students are willing to state own ideas even if different from those of other students or the teacher. 	<p>Sentence starters for students to facilitate a safe and cooperative classroom or group discussion.</p> <p>Agreement</p> <ul style="list-style-type: none"> "I agree with _____ because _____" "I like what _____ said because _____" "I agree with _____ because _____ then on the other hand _____" <p>Disagreement</p> <ul style="list-style-type: none"> "I disagree with _____ because _____" "I'm not sure I agree with that because _____" "I can see that _____; however, I disagree with (or can't see) _____" <p>Clarifications</p> <ul style="list-style-type: none"> "Could you please repeat that for me?" Paraphrase what you heard and ask, "Could you explain a bit more, please?" "I'm not sure I understood you when you said _____. Could you say more about that?" "Is there evidence for the position?" "How does that support our work/mission at _____?" <p>Confirmation</p> <ul style="list-style-type: none"> "I hear _____" "I believe _____" "I discovered _____" "I learned that _____" <p>Confusion</p> <ul style="list-style-type: none"> "I don't understand _____" "I am confused about _____" "Can you explain that another way?" "I have a question about _____" <p>Extension</p> <ul style="list-style-type: none"> "I was thinking about what _____ said, and I was wondering what if _____" "This makes me think _____" "I want to know more about _____" "Now I am wondering _____" "Can you tell me more about _____?" <p>Review</p> <ul style="list-style-type: none"> "I want to go back to what _____ said." "I like _____" "I noticed that _____"



Check us out on the web under Climate and Culture: [Illinois Classrooms in Action](#)

