

Published monthly by
ISBE
Content Specialists

Third through Fifth 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: Science Integration

Volume 7 Issue V

December/January 2018/2019

Resources for Implementing 3 Dimensional Science Assessment

The Next Generation Science Standards website provides many quality resources to support the current Illinois science standards.

Listed below are some of those resources. For a full list, visit the website:

[https://
www.nextgenscience.org/
assessment-resources](https://www.nextgenscience.org/assessment-resources)

Science Assessment

Criteria: This document describes the most important features of statewide summative assessments designed for three-dimensional standards based on *A Framework for K-*

12 Science Education, such as the NGSS.

Science Assessment Task Screening Tools:

These two tools are intended to assist educators in evaluating science assessment tasks to determine whether they are designed for three-dimensional science standards based on

the *Framework for K-12 Science Education*, such as the Next Generation Science Standards.

Transforming Science Assessment: Challenges and Recommendations

for States: This brief describes some key challenges associated with developing assessments for

new three-dimensional science standards and recommendations for states to consider.



Illinois Science Assessment (ISA) Information

In compliance with federal testing requirements, Illinois will administer a science assessment to students enrolled in a public school district in grades 5, 8 and once at the high school level.

The high school assessment utilizes a course-based model with content aligned to Biology I. The assessment will be administered in an

online format and is aligned to the Illinois Learning Standards for Science incorporating the Next Generation Science Standards (NGSS), which were adopted in 2014.

The Illinois Science Assessment (ISA) page will be updated as information becomes available. The ISA is **not** an alternate

assessment. Students who participate in the DLM-AA alternate assessment will be assessed in science in grades 5, 8, and 11.

To learn about the most recent updated Science Assessment information, click [here](#) to access the ISBE Science page

How the Illinois Learning Standards and NGSS Work Together



Imagination is more important than knowledge. - Albert Einstein

Susan Pimentel, a planning committee member, principal of Student Achievement Partners, and one of the developers of the Common Core State Standards (CCSS), addressed the rationale behind the development of the informational text literacy standards. First, reading informational text standards are included in the ILS for ELA to ensure that science retains a meaningful place in the elementary grades, where reading and mathematics are heavily emphasized, while also recognizing the limited time in the school day. A second motivation for creating reading for information text standards is to ensure that high school students are prepared to access and use science texts, which are often

difficult for students to comprehend due to challenging words and grammar, atypical logic structures, and multiple representations. There are 10 literacy standards specific to science and technical subjects in 6-12.

The literacy and science standards point to the importance of reading and understanding science texts, such as science articles in magazines and newspapers or on the Web, to prepare students for citizenship. Teachers in kindergarten through 5th grade generally work across subjects and address reading, listening, speaking, and writing in science. At this level, teachers should integrate ELA

standards into the teaching of core disciplinary ideas.

Reading informational text standards are meant to support and reinforce K-5 teaching and learning of science content. Both standards call for students to:

- Build strong content knowledge through text.
- Use appropriate tools strategically.
- Obtain, synthesize and report findings clearly and effectively.
- Value evidence.
- Use digital media/technology capably.
- Obtain, evaluate and communicate information.

Ideas for Science and Literacy

It is not enough to read about science but to engage in it's practices. However, engaging students in reading and understanding texts, as well as helping them develop proficiency in communicating science both orally and in writing, should be part of a well rounded science program. Science texts are typically multimodal (text, diagrams, graphs and charts, equations). Many websites provide ideas that support literacy AND science for elementary. Here are a few to check out:



1. [Exploratorium](#): The Exploratorium is a science museum with hundreds of hands-on exhibits . The link provides explorations of natural phenomena that teachers or students can make using common, inexpensive, readily available materials.
 2. [Stanford: How Everyday Items are Made](#) is a collection of resources to showcase how things are made such as jellybeans and airplanes. (Flash player needed).
 3. [Ohio State: Beyond Penguins and Polar Bears](#) provides photos and activities that are aligned to literacy and science standards.
 4. [Library of Congress Everyday Mysteries](#) and www.wonderopolis.org are both sites offering a collection of questions that students might ponder such as "why do geese fly in a V formation?"
- Using engaging sites that connect science and literacy standards is a win-win!

Integrating Math and Science

Mathematics and Science are natural partners.

Mathematics is the language used to understand and explain scientific observations.

Science provides opportunities for students to apply the math skills they are developing.

Consider this quote from

an Edutopia article by Ben Johnson: “In math class one of the biggest needs is relevance. Students want to know how they are going to benefit from being able to do calculations. Why not use science to teach math? Since one of the biggest uses of mathematics in science is data gathering

and analysis, that is the best place to start. When a teacher gives students a real science problem to solve—one that requires math tools—the teacher is giving the students a reason to use math. Math then becomes something useful, not something to be dreaded.” Access the complete article [here](#).

Bears in a Boat

Who can build the best boat? In this lesson, from the National Council of Teachers of Mathematics, students are challenged to create aluminum foil boats that are then tested by filling them with plastic bears until they sink. The lesson serves as a fun, hands-on way to collect data. The data from two attempts is collected and used to make two class box-and-whisker plots with some surprising results.



**Mathematics
is the gate
and key to
all the
sciences.**

~ Roger Bacon

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

Thursday, December 6, 3:30-4:30

Fluency without Fear

A popular request by #ILMathCom participants is a discussion about fluency in mathematics. Join us as we explore what works and what doesn't as we all work towards helping our students achieve fluency in mathematics. 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.

Integrating Science Across the Curriculum

Science is the perfect opportunity for students to apply the skills they are mastering in their Math and ELA classes. Science provides them with a context in which those skills become necessary and relevant. Providing opportunities for scientific thinking or a scientific context across the curriculum benefits students in many ways. Students are

going to need to make decisions about technology for their personal use, vote on issues that affect themselves and the planet, and make health care choices for themselves and their family. Equipping students with scientific thinking skills will make them better citizens in the future.

Selecting scientific passages for students to read can

inspire student questions. Encourage question asking and provide students with opportunities to investigate the answers to their questions.

Being cognizant of the [Science and Engineering Practices](#) and [Cross Cutting Concepts](#) and engaging students in these in all subjects is a great way to connect science and other subjects.

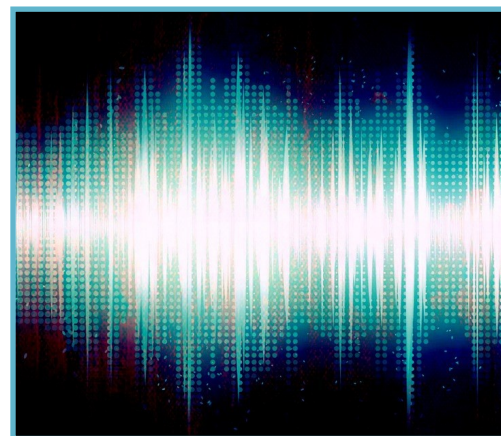
The art and science of asking questions is the source of all knowledge.

~ Thomas Berger

Making Sense of Sound

In this fourth-grade science lesson shared on the National Science Teacher's Association vetted [classroom resources page](#)*, students use physical and technological models to illustrate and explain the nature and characteristics of sound.

*These classroom resources are vetted by [NSTA curators](#) who recommend ways to adapt them to be more in line



Tuesday, December 18 3:30-4:30 pm

Lacey Wieser, a science content specialist from EdReports. EdReports is currently reviewing science curricular materials and examining their alignment to the Next Generation Science Standards and these reports are scheduled to be released in January. Lacey will share information with us about the review process and why this is so important to the implementation of the NGSS and there will be time for questions and discussion. To stay informed of all upcoming #ILSciCom events and to register go to www.scienceteachersinaction.org/ilscicom.html.

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

Adding More Science and Social Studies Through Read Alouds

The importance of reading aloud to children on a daily basis can't be overestimated. The U.S. Department of Education Commission on Reading took into account over 10,000 studies and found that the most important activity for building the skills and background for eventual success in reading is reading aloud to children (see Anderson, Hiebert, Scott, & Wilkinson, 1985).

The research on the powers of read-aloud in facilitating comprehension is extensive. As so aptly stated by Mem Fox (2001):

"If we want our children to learn how to read anything—let alone to read more or to read more diverse or more difficult material—it helps immeasurably if we can give them as much experience of the world as possible. We can provide a great deal of information by the act of reading itself. The more we read aloud to our kids and the more they read by themselves, the more experience they'll have of the world through the

things they encounter in books."

Through read-alouds, students can be introduced to topics and genres that they might otherwise not be able to read independently. Background knowledge and vocabulary (the words that are used for concepts) combined are the best predictors of students' comprehension. Strategically chosen read-alouds are a critical arm of a curriculum that assists students' development of vocabulary and concepts for the topics of complex texts.

If we are to empower students as readers of all the texts in their world, we must ensure they have ample opportunity to listen to and reflect upon the broadest possible range of text types which include science and social science. The following are links to read alouds for the elementary classroom:

- Click [here](#) for Next Generation Science



The teaching of social science and science should have writing and reading at the core.

Connecting Science and Social Science

Science and social studies often get pushed to the side in order to fit in reading, writing, and math. By not teaching science and social studies to our students, we are doing them a disservice.

History and science fit together seamlessly. Scientific innovation has been a driving force in societal change. To put it in perspective for students, have them consider what life would be like without the internet, phones or electricity. Or what it would be like to look up at the stars and not know what they are.

If you're teaching an historical time period, you can focus on scientific discoveries and technological advances during that time. Have students create a presentation that highlights one or more scientific innovations and how they effected society (both then and now).

Developing interdisciplinary lessons and units

can be challenging. There are a number of resources that are attempting to fuse the various disciplines into an integrated approach. They include, but are not limited to:

- [Match Fishtank](#): K-12 instructional materials for science and social science as well as other content areas. These materials are free.
- [Louisiana Department of Education](#): Resources for all content areas.
- [Core Knowledge](#) curricular materials



Teaching and Learning Supports

Third through Fifth Grade



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



Social Emotional Learning Supporting Science

A common learning strategy that supports most of the Illinois Learning Standards is facilitation of student discussions. Two specific social emotional learning goals and related standards require specific student skills to support these student learning conversations.

SEL Goal 2: Use social-awareness and interpersonal skills to establish and maintain positive relationships.

2A- Recognize the feelings and perspectives of others.

2C - Use communication and social skills to interact effectively with others.

SEL Goal 3: Demonstrate decision making skills and responsible behaviors in personal, school, and community contexts

3B - Apply decision-making skills to deal responsibly with daily academic and social situations.

An increase in student science performance will include not just understanding of content, but also the ability to communicate about their science reasoning. 4th - 5th grade SEL benchmark language (developmentally specific for the goals/standards above) help identify student Social Emotional Learning competencies that support science classroom strategies such as ambitious science teaching and talk moves (highlighted by the inquiry project).

4-5 SEL Student Benchmarks

2A	Identify verbal, physical, and situational cues that indicate how others may feel.
	Describe the expressed feelings and perspectives of others.
2C	Describe approaches for making and keeping friends.
	Analyze ways to work effectively in groups.
3B	Identify and apply the steps of systemic decision making.
	Generate alternative solutions and evaluate their consequences for a range of academic and social situations.

Full 4-5 SEL standards/benchmarks available at http://bit.ly/ILSEL4_5

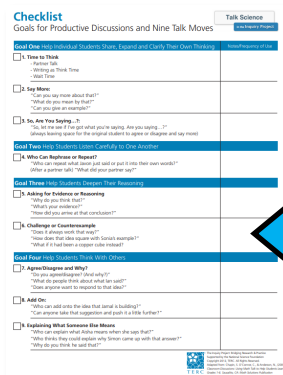
Watch for these benchmarks in the following videos of science instruction strategies...



<https://vimeo.com/106398654>

HOW LEARNING HAPPENS
Encouraging Academic Conversations With Talk Moves

<https://youtu.be/1cqrQFXwLLA>



Science Talk Moves .pdf download
https://inquiryproject.terc.edu/shared/pd/Goals_and_Moves.pdf