

Science Adoption Recommendation Whitewater Middle School 2023-2024



WSS & NGSS

Wisconsin Science Standards & Next Generation Science Standards



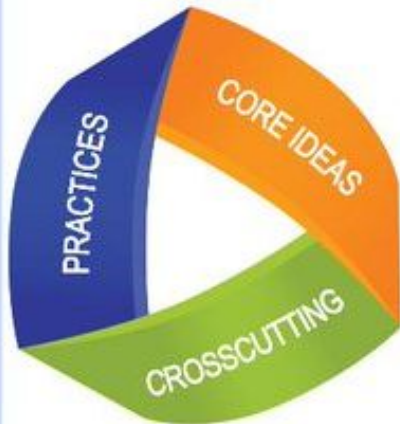
- **Adopted in Wisconsin in November 2017**
- **Phenomenon-based learning**
- **Three Dimensional Learning**

Three Dimensions of Science Learning

A Framework of Standards for Exploring the Natural World and Human-Designed World

What Students Do:

- Ask questions
- Design investigations
- Collect, analyze, and interpret data
- Develop and use models
- Construct evidence-based arguments
- Define a design problem
- Apply knowledge to engineer solutions to a problem



How Students Connect the Three Domains of Science:

- Patterns
- Cause and effect
- Scale, proportion, and quantity
- Systems and system models
- Energy and matter
- Structure and function
- Stability and change

What Students Know: Disciplinary Core Ideas

Physical Science

- Matter and Its Interactions
- Motion and Stability; Forces and Interactions
- Energy
- Waves and Their Applications in Technologies for Information Transfer

Life Science

- From Molecules to Organisms: Structures and Processes
- Ecosystems: Interactions, Energy, and Dynamics
- Heredity: Inheritance and Variation of Traits
- Biological Evolution: Unity and Diversity

Earth Science

- Earth's Place in the Universe
- Earth's Systems
- Earth and Human Activity

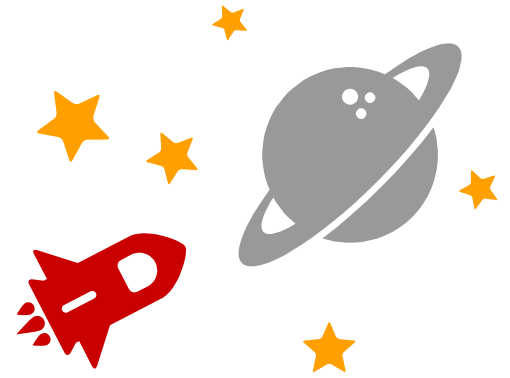
Engineering, Technology, and Application of Science

- *Engineering Design*

Image accredited to Loris Chen, based on NGSS and state standards.

IQWST

- Current Science Curricular Resource, grades 6-8
- Provides integrated science units, with physics, biology, chemistry, and earth science in each grade
- Piloted 2016, adopted 2017 (prior to NGSS being adopted in WI)



Why a change?

Local Experience: IQWST

- Units are inconsistently strong
- Inaccessible to teachers & difficult to navigate
- Unclear procedures
- Generic, lacking ML & SPED support
- Unable to modify materials

EdReports

EdReports released the analysis of IQWST in January 2020. Like most curriculums, it was given a rating of “Does Not Meet” for standards alignment.

WMS Science Data: Forward Exam

Forward Exam 2021-2023 with WMS 8th Grade Students

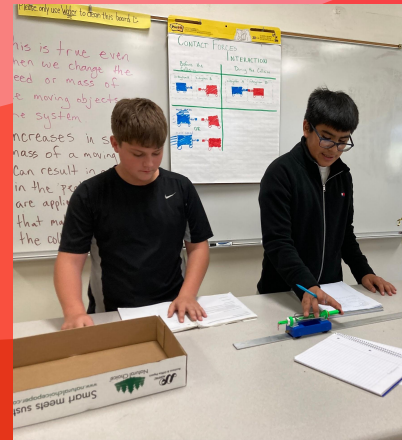
	Below Basic	Basic	Proficient	Advanced
Spring 2023	15.7%	34%	35.2%	13.2%
Spring 2022	17.8%	30.1%	30.8%	20.5%
Spring 2021	14.7%	31.6%	22.8%	15.4%

EdReports

An independent organization with a goal of providing unbiased reports of curriculums alignments to the content standards

Currently only two middle science curriculums are rated as “meets expectations” by EdReports.

- Amplify - 2020
- Open SciEd - February 2023



**Our students
deserve the best
science
curriculum!**



Our Pilots

- 1) All 6-8 grade levels piloted both curricula in 22-23:
 - a) Open Sci Ed
 - b) Amplify
- 2) Recommendations based on teacher and student experience & feedback



Traditional Curriculum vs. Open Education Resource



	Traditional Curriculum	Open Education Resource-OpenSciEd
Accessibility	Contained, one-size fits all	Adaptable to meet student needs
Engagement	Traditional textbook	Interactive & experience-based
Resources	Limited instructional materials	Open share of materials
Collaboration	Led by individual teacher	Unique opportunity for collaboration to learn & grow
Improvements	Static & requiring purchase of revised materials	Revisable & redistributed with little or no cost
Language considerations	Limited language resources & access	Widely-available language resources & constant additions

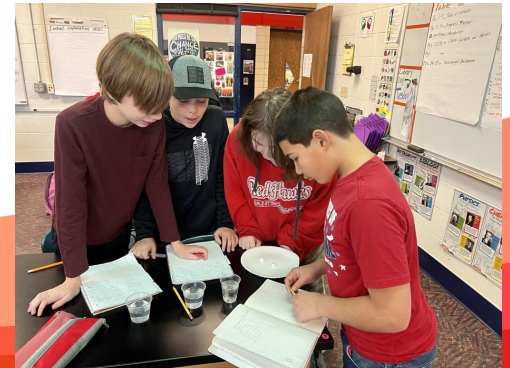
Open SciEd

Pros

- Student discourse ability has grown exponentially since the beginning of the year.
- Supports teacher growth toward better science instruction
- Better science!
- Moves science thinking forward
- Supports students working and learning collaboratively as scientists
- Hands-on investigations



"I liked this unit of science. I really liked the experiments"



Open SciEd

Pros

- Materials are easily accessible online across many platforms (FB, Blooket, Google materials already made)
- Can edit materials as needed, includes notes and guidance for teachers
- Students audibly enjoy the materials and information -High engagement provides students with confidence to make connections sooner
- All materials can be easily modified for MLs and students with IEPs
- Student materials are readily available in Spanish
- Student discourse ability has grown exponentially since the beginning of the year



"I enjoyed it, it was interesting and fun."

"I like Open Sci Ed better. A LOT better!"

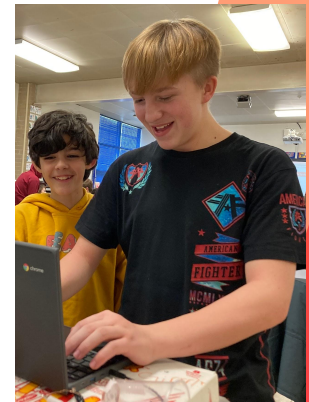
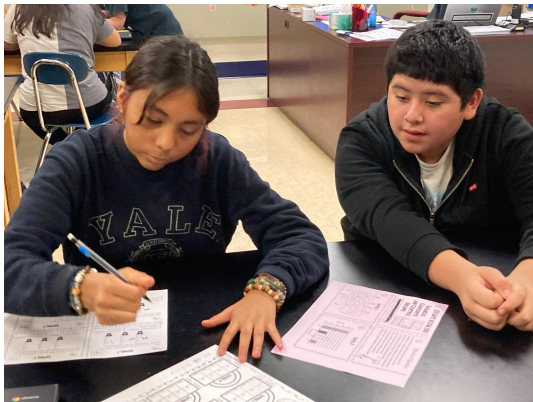
Open SciEd

Considerations

- Increased workload for teachers
 - Unpacking and making sense of the curriculum requirements
 - Modifying/adapting materials to student need
 - Hands-on experiments require greater preparation
- Requires an intentional adjustment period to build up capacity
 - Includes journal-based notes and record-keeping, different from technology-based format
 - Interaction & discourse

K-12 Alignment: Connections & Storylines

In a storyline, the coherence is from the students' perspective, not just the teacher's.



Multilingual Learners

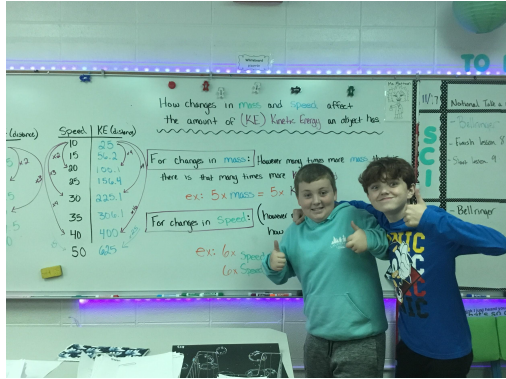
Storylines and Phenomenon-driven instruction support multilingual learners' needs for language use in the classroom. Reading and writing, of course, but also lots of talking and listening. This is important for all our students, and **critical** for ML.

"Que es super bueno y me ayuda mucho."



Students with Special Education Needs

Open Sci Ed allows for students with all ability levels to be able to access information and to become active participants in their learning. Students are able to be involved in scientific thinking and learning, and are excited to learn science.



Open Sci Ed

- Open source curriculum: available online
- Platforms offering varying levels of support from certified companies
- Materials kits available to purchase or lease from certified companies (ensuring materials will work for the activities and labs)
- Offers alignment of skills and standards across k-12 science instruction

Open Sci Ed Curriculum Costs

Curriculum Component with Certified Partner	Cost
Teacher Editions	\$5,398
Student Editions	\$8,630
Digital Resources	\$7,560
Classroom manipulatives	\$37,302
Professional Development <ul style="list-style-type: none">• Facilitator Training	\$3,700
Shipping	\$4,600 (<i>discount applied</i>)
Total	\$67,190

Adoption Recommendation

WMS Science Team strongly recommends adoption of Open Sci Ed. Despite the increased teacher workload, this curriculum will support the continued growth of our students and teachers.

Again, our students deserve the best education. Open Sci Ed is the curriculum tool to provide it!

Thank you!



What questions do you have?