

District 90 Science

Next Generation Science Standards

Resource Adoption

As we look forward to the 2016-2017 school year and beyond, the Roosevelt Science department has worked diligently to research possible resources and reach a consensus in requesting a single option for implementation. The department has chosen to request the adoption of IQWST materials in order to best foster scientific inquiry, critical thinking, and hands-on experiences aligned to NGSS.

Following is an outline of the need, process, and rationale of the Curriculum Review Process



Purpose of the Next Generation Science Standards



NGSS focuses on practices, core ideas, and cross-cutting concepts.



With aligned curricula, students are required to ask questions, develop models, plan investigations, apply mathematical skills, and evaluate evidence to design solutions.



Depth of knowledge is emphasized with attention to the interconnectedness between science disciplines



**Current
Progress**

At present, science classrooms in District 90 offer hands-on investigations while covering NGSS standards. Inquiry and critical thinking skills are fostered in a collaborative environment at all grade levels. There is a need to bring cohesion to the multi-year learning process while addressing standards. Interdisciplinary links and specific science and engineering practices could be aligned vertically to culminate in a strong, lasting, and applicable science education.

Need

Scarcity of Truly Aligned Resources



Moving from lecture to discovery ...



Aligned in content but not in practice

Current textbooks utilized in classes address topics grouped by disciplines.

A main goal with NGSS is to illustrate how science practices and thinking apply to all areas of science.

Many resources from prominent companies (Pearson, FOSS, etc) align standards only but lack three dimensional learning, creating questions, or fostering scientific inquiry.

Research

The Road to Departmental Consensus

Representative
Presentations

Contact districts
utilizing resource

Site visit and
observations

NSTA National
Conference
Networking

Representatives from FOSS, Pearson, Discovery, Stemscopes, and IQWST presented to at least one member of the Department.

The two main options (Stemscopes and IQWST) provided contact information for schools who had adopted their programs. Department members contacted teachers from these schools asking for overall feelings and impressions.

Three members of the D90 Science Dept. visited Lisle Junior High to observe IQWST usage.

Laurie Hendrickson and Amy Rains attended the NSTA National Conference in Nashville. Workshops, networking, and company reps provided further information of top options.

Decision



After scrupulous review, discussions, and meetings, a consensus was reached to elect IQWST as our main choice for NGSS aligned curriculum.

Rationale

Why IQWST?

NGSS Alignment

In contrast to the old practice of checking off a standard as "met" because it was taught on a given day, new standards demand a very different approach. IQWST curriculum integrates standards in a multitude of ways throughout the units as students apply thinking and practices consistently over time.



Research Based, Three-dimensional Learning

"Learning-by-doing" approach was developed by Dr. LeeAnn Sutherland, MSU Professor Joe Krajcik, and Northwestern University Professor Brian Reiser through funding provided by the National Science Foundation. Each unit of study constantly challenges students to explore, examine, and explain observed phenomena or problems.

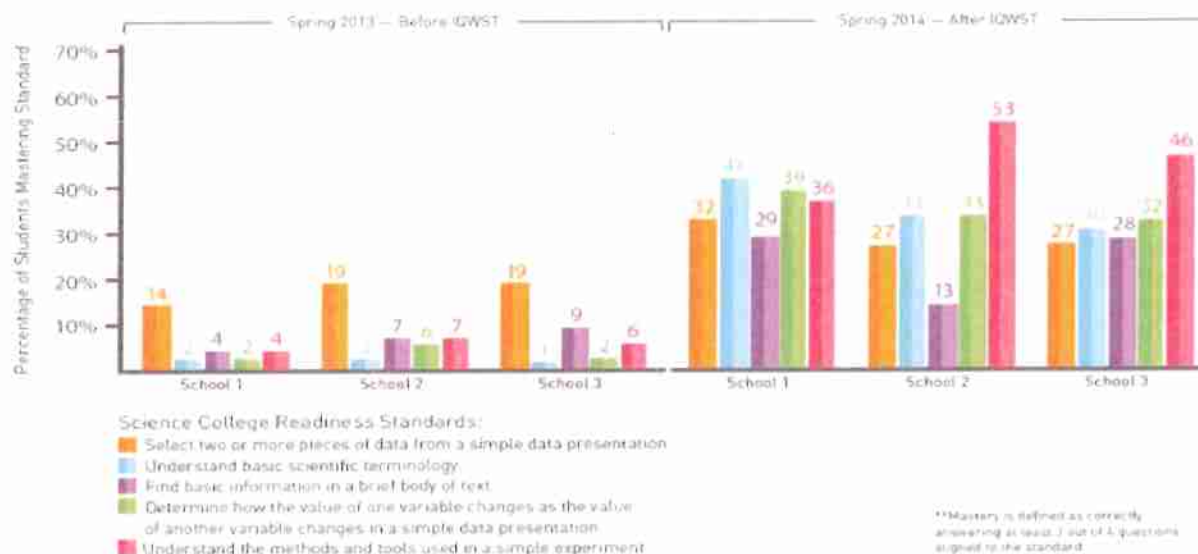
Meaningful Learning Experiences

Curriculum is built around investigations in which students ask questions, design experiments, and investigate problems. Students learn best when when they use coherent materials that build learning over time. IQWST units are thematic and utilize experiences relevant to students' lives.



Effectiveness

Three very diverse middle schools, 1000 students, before & after implementation of IQWST.



Sources

<http://www.activatelearning.com/proof-of-effectiveness/>
<http://www.activatelearning.com/iqwst/>
<http://www.activatelearning.com/authors/>
<http://www.nextgenscience.org/framework-k-12-science-education>

Future Science in D90

The District 90 Science Classroom



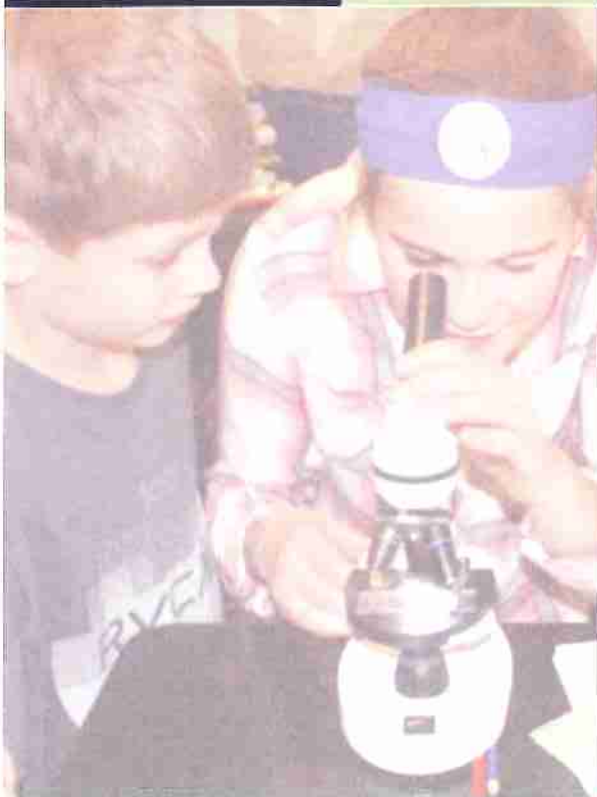
IQWST implementation includes utilization of both print and digital resources to provide equitable access to science for all students.

Grades 6-8 will provide an integrated approach to science education. Curriculum units throughout the year apply a variety of science disciplines including Physical, Life, and Earth Science.

Technology integration is woven throughout units and include use of sophisticated probe equipment, online simulations, video segments, and digital documentation

Moving Forward

Actions Leading to Student Success



Board approval of IQWST will allow the department to move forward with training and planning for the upcoming school year.

Several department members will attend summer workshops that expand understanding on NGSS and aligned curriculum. Workshops are presented and shared with other professionals who use IQWST.

Science Department members will collaborate throughout the year to share best practices, ideas, and experiences anchored in student learning and success.

Thank you





**Activate
Learning**

Engaged Students
Passionate Teachers

IQWST

INVESTIGATING AND QUESTIONING
OUR WORLD THROUGH SCIENCE
AND TECHNOLOGY

WHY IQWST IS THE RIGHT CHOICE FOR YOUR MIDDLE SCHOOL

"The strengths within IQWST are not only the students working cooperatively and engaged in discussions, but also the emphasis placed on reading, writing, and [modeling] to help make sense of the science concepts." — Jamie Klausing, former Michigan Science Teachers Association Teacher of Year

Project-Based, 3-Dimensional Learning

- Research-based and supported by National Science Foundation (NSF)
- Aligns with Next Generation Science Standards (NGSS)
- Literacy Focus: reading, writing, talking, and doing science
- Student Notebooks

Instructional Design with Teachers in Mind

- Teacher Edition: lesson plans, discussion questions, differentiation strategies, and background information
- Interactive Digital Edition (IDE) for web or iPad use
- Video Tutorials: background knowledge & activity set ups
- Embedded Content & Pedagogical Support

Professional Development

- Online Teacher Support and Webinars
- Lesson Modeling
- Educational Resource Specialists
- Train-the-trainer



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IQWST
Interactive Digital Edition