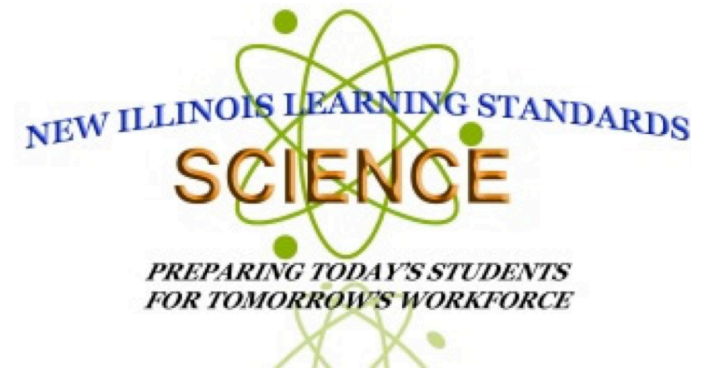


District 23 – Science Curriculum Development 2015

Committee Members:

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Purpose of the Science Curriculum Committee:

The committee of administration and teachers worked collaboratively during the 2014-15 school year to evaluate current curriculum goals and materials, identify gaps, and vision for the future of this curricular area. This will be a continuous improvement process as the standards, technologies, materials, faculty, and students are always variables in the equation. This document, however, is a starting point for curriculum planning, collaborative lesson development, and for articulation in our District.

The current climate of “college and career readiness” has included an emphasis on Science, Technology, Engineering and Math (STEM) that are clearly evident in the Next Generation Science Standards (NGSS). Also evident, is the importance of an integrated and cross-curricular approach to instruction of these content areas. This will require not only an adaptation of the content materials, but also a rethinking of our scheduling, time allocation, and instructional delivery model.

This committee of professionals is to be commended for their time and dedication to reflecting, creating, and writing this update to the Science curriculum in Prospect Heights School District 23.

Visions and Values:

Science courses in District 23 provide students with broad exposure to foundational concepts and skills central to developing an understanding of the world around us and an inquisitive disposition. We believe that understanding key science concepts and the process of inquiry and investigation are essential components of college and career readiness. The development of the NGSS and corresponding curriculum materials are still in process, so our curriculum adoption efforts are currently focused on supplemental materials. We have adjusted the Curriculum Review Cycle to place Science up for review again in 2016-17, when NGSS has been fully adopted by Illinois and materials are more fully developed.

It is our vision, however, to develop and deliver high quality, rigorous STEM curriculum that engage our students in the investigative process and provide a foundation of key science concepts.

Next Generation Science Standards:

The Next Generation Science Standards (NGSS) were developed in 2012 and are currently under review by the Illinois State Board of Education. It is likely that these new standards will be fully adopted and used as the foundation for the new Illinois Learning Standards for Science some time during the 2015-16 school year. The Science committee conducted a review of these new standards and a gap analysis of our current curriculum materials.



The NGSS establish four Core Ideas, central to the study of science:

1. Physical Science
2. Life Science
3. Earth and Space Science
4. Engineering, Technology and application of Science

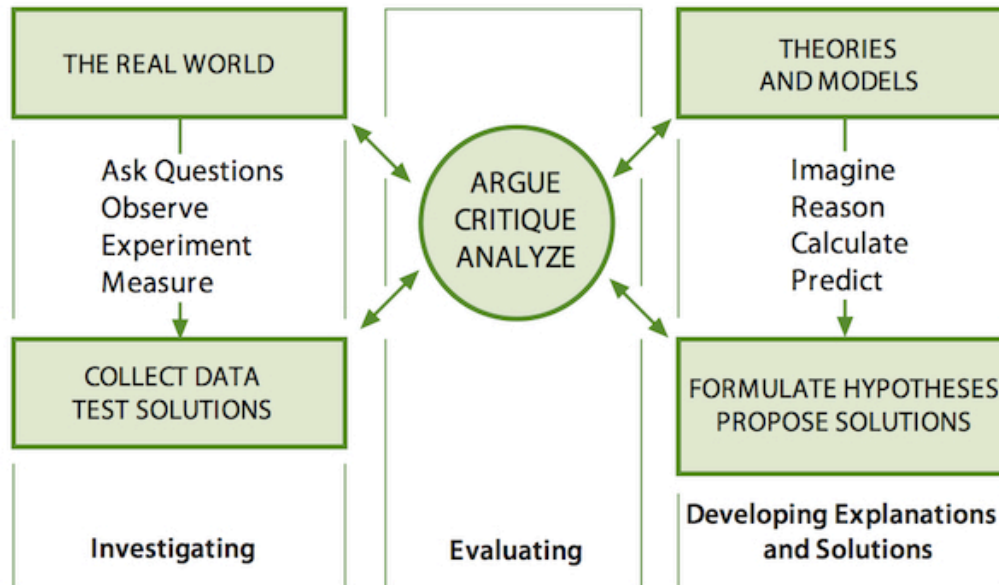
Each of these four core ideas contributes content across the grade levels and support a progression of complexity of information for the students. Throughout the NGSS, the concept of Cross Cutting concepts are identified to build a deeper understanding and to highlight the interconnected nature of science. The seven concepts provide students with an organizational framework for connecting knowledge from the various disciplines into a coherent and scientifically based view of the world.

1. Patterns
2. Cause and effect
3. Scale, proportion, and quantity
4. Systems and system models
5. Energy and matter

- 6. Structure and function
- 7. Stability and change

Lastly, the NGSS utilize eight Scientific and Engineering Practices as essential instructional practices:

- 1. Asking questions (for science) and defining problems (for engineering)
- 2. Developing and using models
- 3. Planning and carrying out investigations
- 4. Analyzing and interpreting data
- 5. Using mathematics and computational thinking
- 6. Constructing explanations (for science) and designing solutions (for engineering)
- 7. Engaging in argument from evidence
- 8. Obtaining, evaluating, and communicating information



These elements provide a rich and robust study of science concepts in new and engaging methods.

The District 23 Science Curriculum Committee believes that new materials will be necessary to fully meet the new alignment of concepts, higher rigor of content, and to support the new instructional approach required by the NGSS. In evaluating current vendor options, the committee felt that materials were not yet ready for adoption by District 23, so committee will reconvene in 2016-17 to review updated materials for recommended adoption in the 2017-18 school year. During the 2015-17 school years, administration will continue to investigate modifications to the schedule that will support NGSS instruction. While these investigations continue, professional development in these new standards and practices will be necessary to assist faculty in meeting the new expectations for instruction and content delivery aligned to the NGSS.

Resources:

<http://www.nextgenscience.org/illinois>

<http://isbe.net/ngss/default.htm>

<https://www.nsta.org/>

<http://www.ista-il.org/>

Guide to Implementing the Next Generation Science Standards, National Academy Press, (2015).

http://www.nap.edu/catalog.php?record_id=18802