NGSS for Administrators

Taking Time to Get it Right
Developing a Purposeful Plan for Transitioning to NGSS

Developed for the Introduction to the Next Generation Science Standards, Michigan State University, May 28, 2013
NGSS Introduction

What is your depth of understanding of the NGSS?

1 = not at all

5 = very familiar

http://www.polleverywhere.com/multiple_choice_polls/wHEFw2T0JLUXdAG

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Pressing Questions

• Middle School Grade Spans
• High School Course Models
• Teacher Certifications

• Other questions or concerns, please record on index cards
• Leave your email address so that someone can follow up with you in the event that it is not answered today.

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Structure of NGSS

Crosscutting Concepts

Practices

Core Ideas

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The Guiding Principles of the Framework are Research-Based and Include...
Considerations for NGSS Transition Planning

- The NGSS present a new vision for science education, one that aims to develop student proficiency in doing science.

- While it is important to think about goals for eventual course offerings, it is critical that we
  - Get to know the NGSS
  - Consider the integration of the three dimensions
  - Analyze our current practice
Structure of NGSS

- Expressed as *Performance Expectations* (PEs)
- *Integrate* practices, core ideas, and crosscutting concepts
- Statements of what is to be assessed
- Require demonstration of *knowledge-in-use*
- NOT instructional strategies
- NOT lesson objectives
- State what students should be able to do at the *end of instruction*
- Organized by Topic and by DCI (See chart)
How to Read a PE

“NGSS Structure” Supporting document on NGSS page


Inside the NGSS Box – Content Description (NSTA)

http://nstahosted.org/pdfs/ngss/InsideTheNGSSBox.pdf

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Strategies for Planning Instruction

- Scaffold the development of understanding expressed in the PE(s).
- Develop a series of learning tasks that blend together various practices, core ideas, and CCC.
- Integrate.
- Consider prior knowledge.
  • Preconception and misconceptions

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For More Information

All NGSS official documents are available at

http://www.nextgenscience.org/

NGSS at NSTA

Standards and Supporting Materials Tab

http://www.nsta.org/about/standardsupdate/standards.aspx

NGSS Adoption and Implementation Book


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Key Message for NGSS Transition Planning

- We have *time* for
  - course redesign,
  - development of curricular plans, and
  - assessment development
  - making sure CCSS implementation is done well

- Reminder
  - created for states, by states...lots of people working on these items, you are not alone
  - teacher and administrator training is necessary
Conversation Circles

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Beginning to Plan for Transition

- What supports will you need?
- What supports will your teachers need?
- What about students and parents?
Considerations for NGSS Transition Planning

- Teachers are encouraged to get to know the NGSS and the Framework well enough to analyze current practice in light of the NGSS.

- First and second year goals should focus on implementing the NGSS practices and crosscutting concepts.

- Teachers are encouraged to take advantage of professional development that will support careful transition planning.

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Beginning to Plan for Transition

Sometime later, perhaps in SY 2013-14, EACH DISTRICT (local control), **IF adopted**, must consider the following:

- Recommended/provided model course descriptions (included in Appendix K and in the Model Course Mapping resources provided).
- How do current course offerings reflect NGSS structure?
- Consider implications for adjusting instruction to reflect the NGSS. What PD will be required?
- Begin to plan for a workable transition to NGSS, including plans for rearranging course offerings, professional development for teachers and administrators, communicating with parents & stakeholders, and building coherent K—12 plan for meeting the NGSS.
# Middle School Mapping

## Multiple Models

<table>
<thead>
<tr>
<th>Model</th>
<th>6th Grade</th>
<th>7th Grade</th>
<th>8th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual Progression (Appendix K)</td>
<td>Physical Science (+)</td>
<td>Life Science (+)</td>
<td>Earth Systems Science (+)</td>
</tr>
<tr>
<td>Physics First Conceptual Model Expanded to 4 Years HS Science</td>
<td>Physical Science</td>
<td>Life Science</td>
<td>Earth Systems Science - Since HS ESS after MME, add some HS ESS to 8th</td>
</tr>
<tr>
<td>Integrated ESS</td>
<td>Physical Science OR</td>
<td>Life Science OR</td>
<td>Earth Systems Science OR</td>
</tr>
<tr>
<td></td>
<td>Integrated Science</td>
<td>Integrated Science</td>
<td>Integrated Science</td>
</tr>
<tr>
<td>Multi-Topic Science</td>
<td>Physical Science</td>
<td>Physical Science</td>
<td>Physical science</td>
</tr>
<tr>
<td>Similar to MS GLCE and as in other countries</td>
<td>Life Science Earth/Space</td>
<td>Life Science Earth/Space</td>
<td>Life science Earth/space</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Model</th>
<th>9&lt;sup&gt;th&lt;/sup&gt; Grade</th>
<th>10&lt;sup&gt;th&lt;/sup&gt; Grade</th>
<th>11&lt;sup&gt;th&lt;/sup&gt; Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual Progression (Appendix K)</td>
<td>Physical Science (+)</td>
<td>Biology (+)</td>
<td>Earth Systems Science (+)</td>
</tr>
<tr>
<td>Physics First Conceptual Model Expanded to 4 Years HS Science</td>
<td>Physics</td>
<td>Chemistry</td>
<td>Biology</td>
</tr>
<tr>
<td>Integrated ESS</td>
<td>Physics (Astronomy)</td>
<td>Chemistry Earth Systems (Geology, Weather and Climate)</td>
<td>Biology Earth Systems (Environmental, History of Earth)</td>
</tr>
<tr>
<td>Multi-Topic Science Similar to MS GLCE and as in other countries</td>
<td>Physics (Astronomy) Geology (Macro)</td>
<td>Chemistry and Biology (Biochemistry)</td>
<td>Environmental Biology Earth Systems Science (Evolution, climate change, human impact)</td>
</tr>
</tbody>
</table>

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Beginning to Plan for Transition

Who will provide the necessary professional development?

- Michigan Mathematics and Science Centers
- Intermediate School District Science Consultants
- Michigan Science Teachers Association
- National Science Teachers Association
- University Partners like CREATE 4 STEM
- MI STEM Partners
- Multi-State Partners

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Examples from the Field

- PD example from Genessee
- Participation in public comment for initial drafts
- MSTA conference offering: NGSS Bootcamp
- NSTA NGSS townhall and breakout sessions
- Analyzing current practice and how they can modify a current lesson to address cross-cutting concepts and Science & Engineering Practices.
- Attended a Michigan Mathematics and Science Center Network public review of the NGSS drafts.
Resources

- “Developing Understandings” Main Messages
- Topic Progression Comparison of NGSS with Michigan GLCE/HSCE
- MDE Transition Timeline
- Model Course Mapping Document

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Q & A

- Please write your question/s on an index card
- Leave your email address so that someone can follow up with you in the event that it is not answered today.
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For More Information

- All of today’s session materials will be available at

http://www.create4stem.msu.edu/ngss