NGSS Transition Planning K-5

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
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 grade level curriculum changes, it is critical that we
  - focus first on **getting to know the NGSS** and the NRC Framework
  - embrace the **integration of the three dimensions**
  - **analyze our current practice** through the lens of the standards.
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.

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

- First and second year goals should focus on implementing the NGSS Practices and Crosscutting Concepts.
Science and Engineering Practices
Why are there seasons?
Why did the structure collapse?
How is electric power generated?
What do plants need to survive?
... Defining Problems
Developing and Using Models
Planning and Carrying Out Investigations
Analyzing and Interpreting Data

the results
Using Mathematics and Computational Thinking

Global Temperatures

- Annual Average
- Five Year Average

Temperature Anomaly (°C)

Time Period (1880-2000)
Constructing Explanations (Science) and . . .
... Designing Solutions (Engineering)
Engaging in Argument from Evidence
Obtaining, Evaluating, and Communicating Information
A Focus for an hour (or less) – Science and Engineering Practices

• Take a look at what you are already doing in terms of the Science and Engineering Practices. Look at each Practice posted on the chart paper.

• Collaborate with the educators at your table and discuss what you think you are already doing or not doing. Write your comments regarding the 8 Practices on sticky notes.

• Think about these questions:
  • Are you currently engaging your students in inquiry-based science activities?
  • Do you use models?
  • Are your students raising questions?
  • Are they designing investigations?
  • Are your students involved in identifying and solving problems (in school, in the community, at home)?

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A Focus for an hour (or less) – Science and Engineering Practices

Yes! We do that!

We ....

No, we don’t have time ...

Yes! When we do the _____ lab we ...

We do parts of this practice when we ...

but ....

This Practice is new. I will need to think about how to make this part of my instructional repertoire!

I am not sure what this Practice looks like in a science classroom.

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A Focus for an hour (or less) – Science and Engineering Practices

- Dive into Appendix F – The Practices: discuss one practice, write comments on the sticky notes, post the notes.

- How did “diving” into one Appendix help in your understanding of the Next Generation Science Standards?

At your table consider the following, be ready to share!

- What will you ponder at the beach this summer?
- Is there something you can change in the fall?
- Next year when my students learn about ________, they will ____________.
Key Message for NGSS Transition Planning

- We have time for
  - grade level curriculum redesign
  - resource acquisition
  - common local assessments

- **After** we (teachers) know more about
  - the standards (scope, intent, opportunities)
  - how well their current plans align with the standards
  - the impact of the NGSS on instruction and student achievement
  - plans and supports for NGSS assessment

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Beginning to Plan for Transition

Based on current survey data,

- Many Michigan elementary schools devote less than 3 hours per week to science instruction.
- Some Michigan elementary schools incorporate reading about science in their literacy blocks, but do not devote time to doing science.
- What will it take for these schools to decide to teach science (doing science)?
Getting to Know the NGSS
Building on Today’s Learning

- Download the Topic Arrangement of the NGSS, read the introductory material and supporting appendices.
- Review the matrices that provide an overview of the practices, disciplinary core ideas, and crosscutting concepts.
- Review the K-12 topic progressions, and grade band standards/performance expectations (PEs).
- Review the Topic Comparison of NGSS with GLCE/HSCE

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Getting to Know the NGSS

- Consider topics and PEs already being addressed in current courses/curricula, using planning tools provided.

- Identify areas/units that align, select topics or clusters of PEs to use in planning ways to better address the associated practices and crosscutting concepts.

- Use today’s Main Messages document (from Breakout 1) to take a closer look at the PEs.

- Consider implications for adjusting instruction to reflect the NGSS.
Beginning to Plan for Transition

Sometime later, perhaps in SY 2013-14

- Consider what will be involved in shifting grade level assignment of NGSS topics.
- Consider implications for adjusting instruction to reflect the NGSS.
- Begin to plan for a workable transition to NGSS, including plans for rearranging course offerings, and building coherent K—12 plan for meeting the NGSS.
Beginning to Plan for Transition

What supports will your teachers need?

What questions will be important to ask?

Do our teachers understand the shift in instruction called for by the NGSS?

How well is our current curriculum aligned with the NGSS?

Might we work in teams within our school to identify a unit or series of lessons teachers can adapt as they learn more about the NGSS?
Beginning to Plan for Transition

- Who will provide the necessary professional development?
  - Michigan Math 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
  - Independent Consultants
Resources

- “Developing Understandings” Main Messages
- Topic Progression Comparison of NGSS with Michigan GLCE/HSCE
- Taking Science to School
- Framework for K-12 Science Education
- Model Course Mapping Document