Science Updates

K-12 Science Section
NC Department of Public Instruction
The Science Section at DPI

*Beverly Vance*, Science Section Chief

Debra Hall, *K-5 consultant*

Donna Kenestrick, *K-5 consultant*

Benita Tipton, *6-8 consultant*

Jami Inman, *9-12 consultant*

Ragan Spain, *9-12 consultant*
Curriculum Updates
Summer Institutes 2013

- Design and Remodeling sessions, July 2013
- Science sessions featuring:
  - Argumentation
  - CI-Ev-R Model
  - Science Writing Heuristic
- Institutes of Higher Education July/September
CACG Vertical Teams 2013

- Designed as K-12 instructional planning teams.
- Science tools: CI-Ev-R Model, Science Writing Heuristic.
- Follow up: prescriptive professional development support to teams
Math and Science Partnerships 2013-2014

• RFP Published: September 3, 2013
• Intent to Apply Due: September 30, 2013
• Full Proposals Due: November 30, 2013
Presidential Awards for Excellence in Mathematics and Science Teaching

Nominate a K-6 Teacher today!
Nominations close: April 1, 2014
Applications due: May 1, 2014

Awardees receive
• $10,000 from the NSF
• A citation signed by the president
• A trip for two to Washington D.C. for recognition events

www.paemst.org
Presidential Awards for Excellence in Mathematics and Science Teaching

2013 PAEMST Finalists

Laura Lawrence, Asheville School, Asheville
Jeffrey Milbourne, NCSSM, Durham
Mark Townley, Holly Springs HS, Holly Springs

www.paemst.org
• District Outstanding Science Teacher Awards
• Distinguished Service in Science Education in North Carolina Awards
• Outstanding Student Teacher Award
• Vi Hunsucker Award

• NCSTA Study Grant
• NCSTA Innovative Curriculum Support Grant

• NCSTA Board Positions
Nonformal Educator Meeting

- DPI Updates
- N.C. Environmental Literacy Plan
- Survey Information; Beyond a Field Trip…What do educators really need?
- Resources Update
- www.eenorthcarolina.org

December 10, 2013
Discovery Place
Honors Course Implementation

- Revision of all locally developed courses 2013-2014
- Local development and review process
- State-level review *(3-year cycle)*

http://Honorsimplementation.ncdpi.wikispaces.net

or

http://scnces.ncdpi.wikispaces.net/Science+Honors+Implementation
Science Laboratory Safety

SBE Policy GCS-F-017. Science Laboratory Safety, requires development and implementation of a Chemical Hygiene Plan (CHP) by each Local Education Agency (LEA). Plans are to be reviewed, updated, and submitted annually by January 31st.

For additional information, questions or to submit plans contact Jami Inman at jami.inman@dpi.nc.gov.

Complete the following information in order to subscribe to a List Serv for LEA Chemical Hygiene Officers: CHO List Serv.

Link here for October 3, 2013 Recorded Webinar & Webinar Presentation & Training Resources
Link here for Archived Safety Webinar, PowerPoint, and Notes December 4, 2012

Checklist for 2012-2013 Chemical Hygiene Plan Revisions
- CHP2012-13_Checklist.doc
  - Details Download 36 KB

INFORMATION ABOUT CHANGES IN THE HCS 2012
US Department of Labor website provides a summary of changes, frequently asked questions, and resources.
http://www.osha.gov/dsg/hazcom/

Note: Most resources have not yet been updated to include new labeling or Safety Data Sheet (SDS) information.

Generic Plans for School Use:

NC Department of Labor Program Templates:
- NCDOL ChemicalHygienePlan Template.doc
  - Details Download 204 KB
- NCDOL HazCom Plan.doc
  - Details Download 183 KB

OSHA Model Programs for Bloodborne Pathogens and Hazard Communication Standards
- osha3186Model_programs.pdf
  - Details Download 521 KB
Required Training by December 1, 2013

**OSHA QUICK CARD**

**Hazard Communication Standard Pictogram**

As of June 1, 2015, the Hazard Communication Standard (HCS) now requires employers to label all containers of hazardous chemicals. The new HCS pictograms alert employees to the type of hazard. The OSHA Quick Card provides the information needed to identify hazards:

- **Health Hazard:** Skin, Eye, and Respiratory Protection
- **Flammable Hazard:** Combustible
- **Explosive Hazard:** Sensitivity to Impact
- **Corrosive Hazard:** Corrosive
- **Reactivity Hazard:** Reactivity
- **Environmental Hazard:** Flame

**Hazard Communication Safety Data Sheets**

The Hazard Communication Standard (HCS) requires employers to provide employees with information about the hazards of the materials they work with. The OSHA Quick Card provides a sample title page with important information:

- **Employee Education:** The employer must inform employees about the hazards of the materials they work with.
- **Training Requirements:** Employers must train employees on the hazards of the materials they work with.
- **Chemical Inventory:** Employers must maintain a record of the chemicals used in the workplace.

**Hazard Communication Standard Labels**

OSHA has updated the requirements for labeling hazardous chemicals under its Hazard Communication Standard (HCS). As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the right. Supplemental information can also be provided on the label as needed.
Accountability

Wendy Wooten
wendy.wooten@dpi.nc.gov

Educational Testing/
Accountability Consultant
Test Measurement Specialist for
Science
NCDPI
Conferences and Events
K-12 Science Webinars

October 3, 2013        Safety
October 22, 2013       6-12
October 29, 2013       K-5
November 14, 2013      Safety
March 18, 2014         6-12
March 25, 2014         K-5

ALL webinars are archived and posted to our Science WIKI.
Academically and Intellectually Gifted

• Save the Date! February 27-28, 2014
• Winston-Salem Marriott & Embassy Suites
• Focus, Concurrent & Poster Sessions

http://www.ncagtt.org/conference/overview
CCSA:
Collaborative Conference for Student Achievement

• Save the Date!
  March 3-5 2014

• Registration and Proposals opened 10/21/13

• Focus, Concurrent & Poster Sessions

www.ncpublicschools.org/academicservicesconference/
Elementary Educators

NCAEYC
• North Carolina Association for the Education of Young Children

NCAEE
• North Carolina Association of Elementary Educators

Conferences September 2014
NSTA Conference

2014 National Conference in Boston
North Carolina Science Festival

March 28-April 13, 2014

• Planning events may include lectures, expos, science cafes, exhibitions & performances

2013 K-12 Involvement

• Science Night Kit Elementary
• Invite a Scientist Middle School
• Citizen Science High School

www.ncsciencefestival.org
STEM Education

BRIDGING THE GAP
2013
UNITING NORTH CAROLINA
K-16 STEM EDUCATION

STEM SCHOOLS
Resources
NCDPI Publications

Scientific and Engineering Practices/ Crosscutting Concepts Classroom Posters (SC154)
10 Poster set/ $4 per set

World Class Science at NCDPI
Quick reference guide for NCDPI science information (SC155) 10 brochures per pack/ $4 per pack
www.ncpublicschools.org/publications/
Home Base

- Home Base website includes a suite of technology tools.
- Districts and schools have Home Base or PowerSchool coordinators.
- PD trainings and events are posted.
- Updates and FAQ’s are posted.
- Home Base provides Biweekly Updates.

www.listsncdpi.weebly.com/homebase-list.htm/
Public Schools of North Carolina

http://dpi.state.nc.us/curriculum/science/
NCDPI Science Wiki Resources

- Professional Development
- NC CTS Guides
- K-5 Resources
- Secondary Literacy Resources
- Probe Alignment Guides
- Webinars
- Safety Information
- Math and Science Partnerships

www.ncdpi.wikispaces.net
THANK YOU
Probes and Argument in the K-2 Classroom

Science Consultants, NCDPI
Session Objectives

By the end of this session participants will

• Become familiar with the *Uncovering Students Ideas in Primary Science 25 New Formative Assessment Probes for Grades K-2.*

• Explore how to use argumentation in the primary grades.

• Consider ways to differentiate probes vertically.

• Examine the *new* probe alignment guide and how it can support vertical teaming in your district or school.
Introductions
Formative Assessment Probes

Is It Living?

What are you thinking?

Uncovering Science

Uncovering Physical Science
Primary Probes!

• Collection of probes designed to uncover the ideas students bring to their science learning
• Exclusively targets young children's ideas
• Research based
• Minimal text format
• Visual representation
How are primary probes different?

• “Talk Moves” strategies
• Revoicing
• Asking students to restate someone else’s reasoning
• Asking students to apply their own reasoning
• Prompting students for further participation
• Asking students to explicate their reasoning
• Using ample wait time
Is It Living?

- cat
- seed
- frog
- fire
- grass
- river
- rock
- tree
- cloud

What are you thinking?
Argument in the Primary Classroom

• What does argument look like in the K-2 classroom?

• What are the behaviors that promote argument/science talk in the scenario?

• Read Miss Ortega introduction p. xxiii-xxiv and identify these behaviors.
## Argument in Science Classrooms

### Progression of argument

<table>
<thead>
<tr>
<th>Grades K - 2</th>
<th>Grades 3 - 5</th>
<th>Middle School</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make a claim and use evidence</td>
<td>Construct and support scientific arguments drawing on evidence, data, or a model. Consider other ideas.</td>
<td>Construct and present oral and written arguments supported by empirical evidence and reasoning to support or refute an explanation for a phenomenon.</td>
<td>Construct a counter-argument that is based in data and evidence that challenges another proposed argument.</td>
</tr>
</tbody>
</table>

### Key Points
- A Framework for K-12 Science Education
- Scientific and Engineering Practices
- Engaging in argument from Evidence
Argumentation A GO GO GO

Reflect on argumentation as you ‘walk’ to the music.

When the music stops, stop and share your ideas with someone close by.
Teacher Notes

• Study the teacher notes.
• Consider how a probe might be differentiated for a target grade band.
Differentiating a Probe

• Join a grade band group.
• Work together with your group members to create a differentiated probe for your grade band/grade.
• Remember that the probe should be differentiated for developmental band and argumentation progression.
Share Differentiated Probes

- Select someone to present your grade/band group’s differentiated probe.
- Share your differentiated probe with the group at large.
Updated Probe Alignment Resources

K-12 Science Essential Standards Aligned to Formative Assessment Probes

The Excel document contains the following worksheets:

- **K-12 Alignment by NC Essential Standard Strand** This worksheet provides a vertical alignment of probes within the strands of the NC Science Essential Standards. Strands are color coded in the first column and include Earth in the Universe (E1), Earth Systems, Structures and Processes (E2), Earth History (E3), Structure & Functions of Living Organisms (L1), Ecosystems (L2), Evolution & Genetics (L3), Molecular Biology (L4), Force and Motion (P1), Matter: Properties & Change (P2), Energy, Conservation & Transfer (P3), Interactions of Energy and Matter (P4). Also see [Customized Curriculum Topic Study Guides](http://scnces.ncdpi.wikispaces.net/Customized+Curriculum+Topic+Study+Guides) for more information about digging deeper into the standards.

- **High School Alignment** This worksheet provides a list of standards by high school course (Biology, Chemistry, Earth/Environmental Science, Physics, and Physical Science) with probe alignment.

- **Middle School Alignment** This worksheet provides a list of standards by grade (6-8) with probe alignment.

- **Elementary Alignment** This worksheet provides a list of standards by grade (K-5) with probe alignment.

[http://scnces.ncdpi.wikispaces.net/Formative+Assessment+Probe+Alignment](http://scnces.ncdpi.wikispaces.net/Formative+Assessment+Probe+Alignment)
Reflection

• Take some time to think about all that has been discussed about formative probes and argumentation.

• Record some reflections for yourself that are take-aways.
Evaluations

- Please go to the link on the wiki and complete our session evaluation form.

http://scnces.ncdpi.wikispaces.net/NCDPI+Presentations