“We live in the present, we dream of the future, but we learn eternal truths from the past.”

— Madame Chiang Kai-shek
Science

UPDATES
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*
Science Service Delivery Assignments

Region 1     Ragan Spain – ragan.spain@dpi.nc.gov --(919)-807-3950
Region 2     Benita Tipton – benita.tipton@dpi.nc.gov--(919)-807-3933
Region 3     Debra H/Donna K
Region 4     Jami Inman – jami.inman@dpi.nc.gov--(919)-807-3607
Region 5     Donna Kenestrick – donna.kenestrick@dpi.nc.gov--(919)-807-3863
Region 6     Debra Hall – debra.hall@dpi.nc.gov--(919)-807-3814
Region 7     Jami Inman
Region 8     Ragan S/ Benita T

Beverly G. Vance,
Science Section Chief
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919-807-3936
North Carolina Science Essential Standards

Learning Path

2011

WHAT

Focus: Internalizing a new SCOS

2012

HOW

Focus: Planning how instruction needs to change

2013

IMPROVING PRACTICE

Focus: Reflecting, adjusting and improving after year one of implementation
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.
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
Theresa Cowan
The 2012 Presidential Awards for Excellence in Mathematics and Science Teaching Awardee for North Carolina (K-6 Science)
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
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...
    - Details: Download 204 KB
  - NCDOL HazCom Plan.doc
    - Details: Download 183 KB

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

Wendy Wooten
wendy.wooten@dpi.nc.gov

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.
CCSA:
Collaborative Conference on Student Achievement

March 3-5 2014

• Focus, Concurrent & Poster Sessions
• Keynote by Lois Lanning

www.ncpublicschools.org/academicservicesconference/
Elementary Educators

NCAEYC
• North Carolina Association for the Education of Young Children

NCAEE
• North Carolina Association of Elementary Educators

Conferences Fall of 2014
NCSTA Conference

November, 2014
(dates tba)
NSTA Conference  April 3-6, 2014
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
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
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?

cat
seed
tree
frog
fire
grass
river

What are you thinking?

Uncovering Science

PUBLIC SCHOOLS OF NORTH CAROLINA State Board of Education | Department of Public Instruction
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 from Ready Set Science

- 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
Probes and Science Talk K-2

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>

- **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.
• Study the teacher notes.
• Consider how a probe might be differentiated for AIG learners.
Differentiating a Probe for AIG

• Join a 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.
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/Formative+Assessment+Probe+Alignment) 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)
• 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.