Cory Buxton & Martha Allexsaht-Snider
CADRE Feedback Session
June 15, 2012

Language-Rich Inquiry Science with English Language Learners (LISELL)

Project Overview

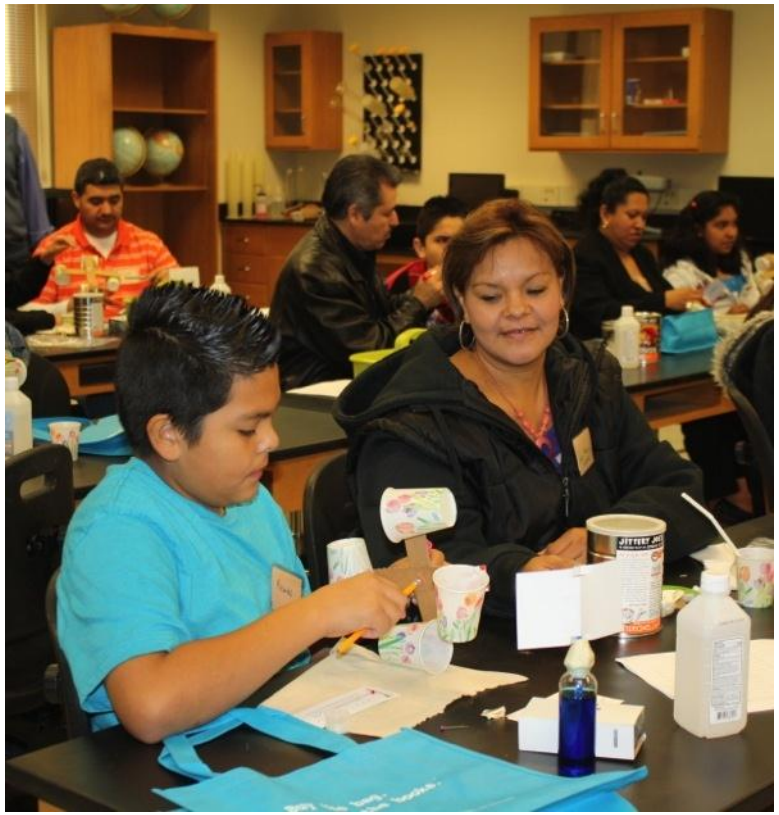
- Overarching goal is to develop a model of language-rich science inquiry and tools for assessing that model
- Focus is on middle school ELL students, their families and their science and ESOL teachers

LISELL Model Practices

- 3 LISELL science inquiry practices: Coordinating Hypothesis, Observation & Evidence; Controlling Variables; Explaining Cause & Effect Relationships
- 2 LISELL academic language practices: Using General Academic Vocabulary in Context; Using the Academic Language of Science

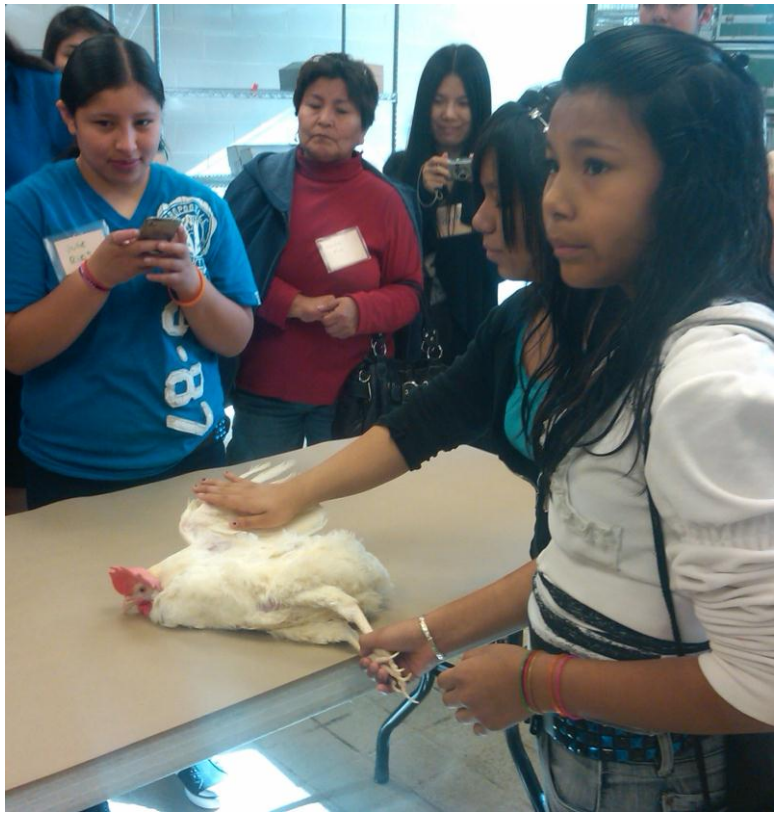
Rationale for Practices

- These practices are important across content areas & learning contexts
- They are challenging but accessible for all middle schoolers & their families
- They are conducive to developing the skills of thinking, doing, talking, and writing scientifically
- They benefit all students but especially ELLs
- They are well aligned with the Next Generation Science Standards & Common Core Math & ELA



Project Learning Contexts

- Middle school science classrooms
- Teacher PL workshops
- Family science & academic engagement workshops
- Teacher scoring sessions with project assessments



Our Goals for Teachers

- Reflect on the value of providing all their students, and especially their English learners, with increased opportunities to think, talk and write about science
- Integrate the materials we are co-developing systematically into their regular teaching routines to support students' learning in sustainable ways
- Strengthen students' fluency in communicating their ideas using both everyday language and the academic language of science
- Support students' in strategically making choices about how to use language in science for different communicative purposes

Our Goals for this Session

Get your thoughtful feedback about our materials for enhancing opportunities for ELL students to learn and use:

- Science inquiry practices
- Academic language practices

Get your ideas about how to help teachers integrate these materials and practices to support all students, and especially ELL students, in becoming powerful science learners

Get your ideas about how our materials and practices can best be used in out-of-school contexts such as our bilingual family science workshops

Materials for Supporting LISELL Science Inquiry Practices

Lesson Starters

LISELL
Lesson Starters

Coordinating Hypothesis, Observation and Evidence

LISELL
Lesson Starters

Explaining Cause and Effect Relationships

Feedback on Lesson Starters

With a partner select one of the three inquiry practices and review the lesson starter materials

- What do you see as strengths and limitations in the current lesson starter format?
- What suggestions do you have for other approaches using lesson warm-ups or wrap-ups to promote thinking, talking and writing about science inquiry?

Lab Notes Templates

Name:_____ Period: _____ Date: _____

LISELL Lab Notes - Focus on Hypothesis, Observation & Evidence

Lab Activity: _____

What is your **Hypothesis** about what will happen in your experiment? (Write it as an if/then statement)	What **Observations** should you make during your experiment (What data should you collect? What should you measure)?	What would you count as **Evidence** to support or to reject your hypothesis?

Use **scientific language** to describe how you can use your **observations** as **evidence** to support or reject your **hypothesis**.

_____

_____

_____

Name:_____ Period: _____ Date: _____

LISELL Lab Notes - Focus on Control of Variables

Lab Activity: _____

What is the **Independent Variable** in your experiment (What will you change to see what happens)?	What is the **Dependent Variable** in your experiment (What will change as a result of what you do)?	What **Constants** or **Controlled Variables** will you need to keep the same during your experiment in order to have a fair test?

Use **scientific language** to describe how you will control the variables in your experiment:

_____

_____

_____

Full Inquiry Framework



LISELL Lab Template – All Inquiry Practices

Lab Activity: _____

1. Questioning 	**State the problem** • What do I want to find out? (Write in the form of a question) _____ _____ **Gather background knowledge** • What do I already know about the topic? (Write 3 things) _____ _____ _____ _____ **What is my Hypothesis about what will happen in my experiment?** (Write it as an if/then statement) _____ _____ _____
2. Planning 	**Develop a plan for testing my hypothesis (think about these questions, talk with a partner, write what I think)** • What **Observations** should I make during my experiment (What data should I collect? What should I measure)? _____ _____ _____

Feedback on Lab Templates & Inquiry Framework

With a partner select one of the three inquiry practices and review the lab template materials

- What do you see as strengths and limitations in the current lab template format?
- What suggestions do you have for other ways to scaffold thinking, talking and writing in the context of science investigations?

Materials for Supporting LISELL Academic Language Practices

General Academic Vocabulary Word Card Sets

Word of the Day

Indicate *(Indicar)*

(v) to show or point out; to state or express briefly

Darker colors on a physical map **indicate** mountains.

Group 6

Word of the Day

Component *(Componente)*

(n) a part of something

Murphy's Law: After putting together a new bicycle, there will be extra **components** left over.

Group 9

Feedback on General Academic Vocabulary

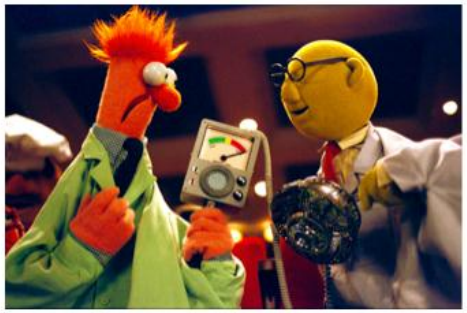
With a partner look at the pages that identify (in bold) the use of the general academic vocabulary in the Georgia Performance Standards (p. 11)

- How would you work with science teachers to consider the ways in which teaching general academic vocabulary is important to their teaching of science?
- What specific suggestions do you have for how general academic language could be used and supported in science classes?

Academic Language of Science Lesson Starters

LISELL
Lesson Starters

Using the Academic Language of Science



LISELL Lesson Starters
Using the Academic Language of Science

Healthy Eating at School

Your principal has **invited** science classes at your school to make a plan for how to help middle school students eat healthier meals at school and get more exercise. Write a short letter to your principal, using scientific language, explaining your ideas about how things could be changed at your school so that students could eat healthier lunches and get more exercise.

Feedback on The Academic Language of Science

Review the two page introduction outlining aspects of the academic language of science

With a partner select and review three of the lesson starters

- What do you see as strengths and limitations in the current lesson starter format for teaching about the academic language of science?
- What suggestions do you have for other approaches that could support teaching about the academic language of science?

Final Thoughts and Comments

- What is one thing that you got out of the conversations in this feedback session?
- What are your suggestions for next steps as we continue our materials development work with teachers and families?
- Thanks for all your feedback!!