Teaching Elementary ELLs to Read and Write Like Scientists

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Who I Am

- Classroom Teacher
- Literacy Specialist
- Instructor

DESE "Selected Populations" Data Summer 2013

Title	% of School	% of District	% of State
First Language not English	28.1	26.8	17.3
English Language Learner	18.5	13	7.7
Low-income	75.3	59.7	38.5
Students with Disabilities	22.9	21.6	17.0

What We Know About Literacy and Science

1. Children need to read, write, and speak about something interesting (Allington, 2002; Guthrie et al., 1999).
2. All children learn best when the learning is situated in context (Goldschmidt, 2010; Guthrie et al., 1999), and this is particularly true for ELL students (Cummins, 2000).
3. Reading and writing can be used as tools of inquiry in science. Reading and writing benefit when embedded in an inquiry-based science setting (Pearson et al., 2010).

"When literacy activities are driven by inquiry, students simultaneously learn how to read and write science texts and to do science" (Pearson et al., 2010, p. 459-460).

Summer Program Setting

- Staff
  - Director and Assistant Director
  - 16 teachers, 6 paraprofessionals, 2 art interns
  - Target students—109 struggling readers and writers entering 1st - 5th grade
- 8 classrooms
- Team taught
- Four weeks long, four days a week, four hours a day

Purpose

Provide intensive summer interventions in literacy for struggling readers and writers (predominantly ELL) through science and art.

Two Mantras

- Every child reads something well every day.
- Our curriculum is the child's needs.
  - We will focus on content, language, and use.

Planning our Water Content

2 Professional Development Sessions

- Developing science content, experiments, and field trips with Science Educator
- Brainstorming art extensions with Art Educator
- Informational text focus—how to scaffold learning
- Analyzing assessment data and determining next instructional steps

Multi-modal approach to learning
(Pearson et al., 2010)

Introducing and using the language of experiments and science

Do-It

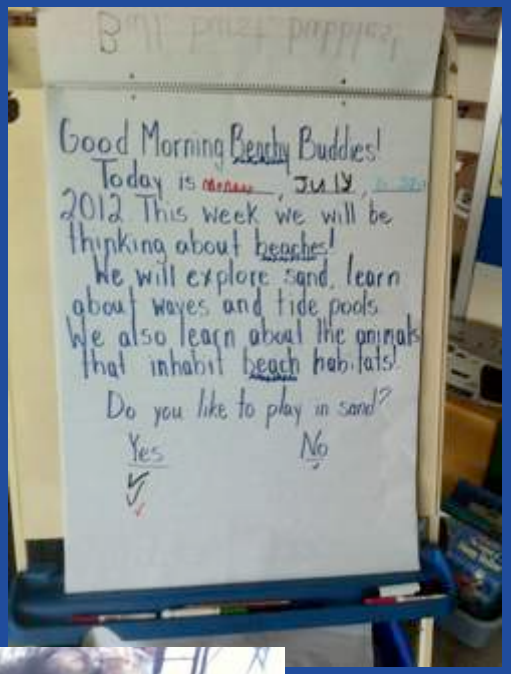
- Conduct experiments
- Go on fieldtrips
- Watch videos
- Keeping scientific journals—integrating writing

Talk-It

- What I thought I knew/ What I have learned as a scientist chart (Revised KWL charts)
- Discussing experiments —making predictions, discussing results, drawing conclusions
- Shared writing experiences
- Oral rehearsal before writing

Read-It

- Supported investigations and experiences with reading texts
- Topic-based texts for read alouds and guided reading
- Reading and rereading multiple texts—independently, in pairs, rereading, with support, as read alouds
- Researching their own questions—paired research



Write-It

- Wrote lab reports (informational)
- Researching their own questions—paired research (note taking and informational)
- Wrote guides—how to prepare for a natural disaster in Salem (informational)
- Wrote about experiences on field trips and what happened during experiments (narrative)
- Wrote to advocate (opinion)

Weekly Lesson Planning Tool

	Themes (Content Goals, Target Vocabulary)	Texts—Reading Opportunities	Texts—Writing Opportunities	Experiences (Art, Field Trips, Experiments)
Week 1		• Guided reading • Content reading		
Week 2		• Guided reading • Content reading		
Week 3		• Guided reading • Content reading		
Week 4		• Guided reading • Content reading		

Daily Lesson Planning Tool

	Monday	Tuesday	Wednesday	Thursday
Science Content Learning Goals				
Experiences to build content knowledge (field trips, art extensions, science experiments, read alouds, videos)				
Reading Workshop * Word Work * Read alouds * Guided reading (daily) * Independent activities (rereading for fluency)				
Writing Workshop				
Daily Wrap-up				

Daily Literacy/Science Schedule

- Morning Meeting
  - Discussion
  - Daily agenda
  - Fluency work with poems
  - Content generation
- Reading workshop
  - Guided reading
  - Word work
  - Independent reading
  - Read alouds about content
- Writing Workshop
  - Writing about science experiments, field trips, videos, their research, and reading
- Daily wrap-up
  - Goals for the next day
  - Content focus
- Art extensions (field trips to SSU for 4th and 5th graders)
- Daily debriefing and planning time for teachers

Reading Outcomes

Number of Children	Growth on the BAS reading assessment
38 children (46%)	+1.5-3 months
15 children (18%)	+4-6 months
5 children (6%)	+7-9 months
23 children (28%)	maintained

- 17 children (20%) who were previously below grade level are now on or above grade level
- An average of 2.6 months of growth in four weeks
- Attendance = 76%

More Progress!

- 65% of the children increased their spelling ability
- 58% of the children increased in their content knowledge
- 44% increased their English Language Proficiency
- More than half of the children (51%) reported on evaluative surveys that they were now more motivated to read and participate in literacy activities.

Our Budding Scientists

"As a scientist, I've learned to not touch the animals."

"I've learned that hermit crabs go in their shells."

"As a scientist, I've learned to read for details."

What does a scientist do?

A scientist does observe. Scientist uses tools. Scientist think. Scientist uses scale. Scienst uses facts.

What does a scientist do?

Name

Scientist work in thir lab.
I want to be a Scientist
so I can ... Scientist
are ... at finding things.

Principles for Improving Children's Literacy and Science Achievement

1. All children learn best when the learning is situated in context (Goldschmidt, 2010; Guthrie et al., 1999), and this is particularly true for ELL students (Cummins, 2000).
2. Assessment should inform instruction (Valencia & Buly, 2002).
3. Children need more experience with "high-success reading" (Allington, 2002, 2006).
4. Professional development, coaching, and collaboration build teachers' capacity (Guskey, 2003).

Implications and Application

We believe that programs such as this can be implemented during and outside of the school year. It will take:

- Collaboration between ESL teachers, content-area teachers, and district leaders for PD opportunities
- Understanding of motivational, content-rich, language-intensive materials
- Identification of students at risk
- The opportunity for hands-on, content-based learning

Questions and Comments

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Thanks for coming!