

Science & Literacy

Improving Reading Comprehension
through the
Engagement of Science

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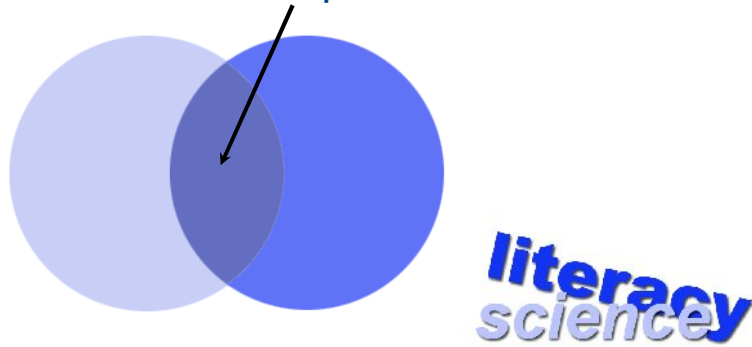
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Goals and Purpose

- Examine the intersection of science and literacy
- Explore the role science can play as an engagement tool to deepen reading comprehension
- Share our story using CORI in five SPPS elementary schools
- Direct you to further resources

Our question...

- In what ways might science and literacy intersect in a way that embraces the potential of both disciplines?



Teach your science students effective strategies for reading non-fiction.

Have books available for your science students.

- In what ways might science and literacy intersect in a way that embraces the potential of both disciplines?

Build around themes, choose books during literacy that support the science unit.

Take your science students to the library to do some background research.

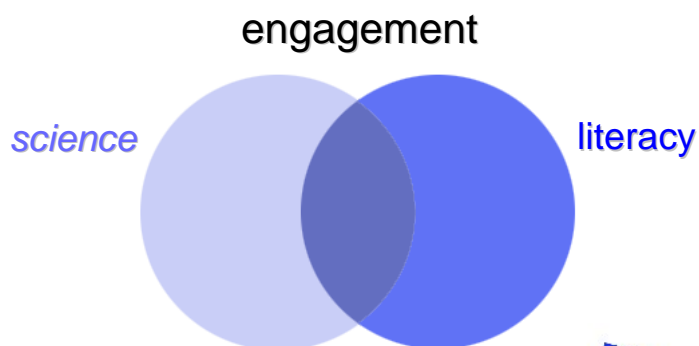
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Our story...

- Reading First
- SPPS Center for Academic Excellence
- Contacted Jennifer McPeake, CORI professional developer
- Developed a program to be offered in 2008-2009 to SPPS elementary schools
- Solicited proposals
- Accepted 4 + 1

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Concept Oriented Reading Instruction



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What are the broad goals of literacy?

Develop capacity to

- read text to acquire knowledge
- read for personal growth
- read for pleasure

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Engagement

The “meaningful participation in a context where to-be-learned knowledge is valued and used.”

Hickey, D.T (2003). Engaged participation vs. marginal non-participation: A stridently sociocultural model of achievement motivation. *Elementary School Journal*. 103 (4), 401-429

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Engaged Readers

- Cognitive competence
- Motivation
- Knowledge-driven
- Socially interactive

(Guthrie, et al. P.3)

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What are strategies to engage learners?

1. Make instruction **relevant** to student lives.
Build intrinsic motivation through interest building activities
2. Provide **choice** allowing students to take ownership of their reading and learning
3. Arranging **collaborative** social interactions
4. Feel **success** building students' confidence in their capacity to read
5. Build around a **conceptual theme** allowing for deep understanding of content over time.

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Commonalities

Comprehension Strategies	Science Inquiry
Activating background knowledge	Observing
Questioning	Hypothesizing
Searching for information	Designing investigations
Summarizing	Representing findings
Organizing graphically	

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Science Goals

- To develop process skills of science
- To further understanding of Big Idea science concepts
- To gain science content knowledge

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Role of Science

“At the heart of learning science is the motivational power of direct observations and hands on investigation of natural phenomena. Giving students the opportunity to make their own discoveries... sparks an enthusiasm for science that leads to an irrepressible desire to learn more by reading.”

Barbosa and Alexander in Guthrie (2004). p121

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So what does it look like?

- In pairs, examine the feathers at your table and make a list of observations
- Generate a list of questions you would like to know about these feathers
- Sort questions into
 - Investigable
 - Access through print
 - Pick one and find the answer in one of the books at the table
- Be prepared to share out

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What else?

- What other items/activities might we have done to generate interest?

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Teaching with CORI

- **Engagement** -
 - Science activity - approx 2 days/wk
 - Expressive reading - poetry, read aloud, vocabulary extension approx 3 days/wk
- **Comprehension Instruction** - whole class instruction followed with guided reading groups - focus on strategies
- **Writing and Communicating** - respond to reading through informational and narrative writing
- **Independent Reading** - students choose from collection of literary and information texts

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Building a CORI Unit

- Establish **reading** goals
- Identify a **Science** theme and associated concepts
- Choose books (all accounting for text difficulty)
 - 8-10 information books
 - 6-8 books from complimentary genres to make up class sets and team sets
- Establish **writing** goals
- Establish **motivation** goals
- Develop a **culminating activity**
- Plan the **daily instruction**

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Our CORI Experience

- Seven school teams applied - accepted four
- Teams made of classroom teachers, literacy and science specialists
- Participated in 30 hours of professional development and team work
- Each developed a unit
- Classroom teachers each received \$1000 budget for book purchases.

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Teacher Comments

- I'll never teach the same way again
- It overflows into other disciplines
- It challenges your instructional practices and strategies – causes me to collaborate with colleagues – students – allowing them to become experts
- The power of infusing the strategies of motivation into daily practices of teaching
- CORI is not a unit or curriculum, it embodies best practices, it is what we do
- Kids are deeply engaged in learning (all aspects)
- Rich in vocabulary development
- Time-efficient, integrated way. Felt like we had more time.

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Teacher Comments

- CORI is a natural with kids
- It eliminates the passive, frustrated learner.
- The lower reading level reader excelled.
- Eliminated apathetic learners.
- Honors the learning style of students
- This doesn't feel like another layer - its doing what we do, but doing it better.
- Kids began to read for an authentic purpose.
- The quantity and quality of student writing excelled.
- Moved beyond science and literacy to include social studies, culture, and art.

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Taking home...

- What might you do at your site to build engagement in reading through an intentional integration of science inside the literacy block?
- Talk at your table - be prepared to share out

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Resources

- Guthrie, J.T., Wigfield, A., & Perencevich, K.C. (2004). *Motivating reading comprehension: Concept-oriented reading instruction*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Swan, E.A. (2003). *Concept-oriented reading instruction: engaging classrooms, lifelong learners*. New York: The Guilford Press.
- CORI Website <http://www.cori.umd.edu/>
- Tracey Kubitz, Kubitz Educational Services, P.O. Box 279, Hamel, MN 55340
800-519-8370 / 763-478-5110, fax 763-478-5114 www.kubitzbooks.com

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