STEM Read Aloud Professional Development

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Curriculum Topics, School Name(s), Number of Educators, Grade Level(s)

Space: Moon

Parent Development was given at the San Diego Convention Center, my current work place. 15 people attended one of four 30-minute sessions. These adults were a variety of parents, step-parents, grandparents, and people interested in learning more about reading with children even if they didn't have any of their own.

Standards Addressed

Reading: Literature K- 5

Reading: Informational Text K-5

Reading: Foundational Skills K-5

(Appendix A)

Summary of Project

The goal of my Parent Development was to educate the parents and grandparents at my place of business on the importance of reading aloud. This included instructing them how to do a read aloud. I provided them with a variety of materials including lists of STEM level books for grade level spans, both fiction and non-fiction. I modeled a read aloud including activity using question strips to keep listener engaged in the reading.

Pre-questions Survey List

Had this been done for school I would have send this out as a google survey to aid in data collection and save time for the PD session.

Age: What is your age?

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75 years or older

Ethnic origin: Please specify your ethnicity.

- White

- Hispanic or Latino
- Black or African American
- Native American or American Indian
- Asian / Pacific Islander
- Other

Education: What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.

- No schooling completed
- Nursery school to 8th grade
- Some high school, no diploma
- High school graduate, diploma or the equivalent (for example: GED)
- Some college credit, no degree
- Trade/technical/vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

What was your total household income before taxes during the past 12 months?

- Less than $25,000
- $25,000 to $34,999
- $35,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- $100,000 to $149,999
- $150,000 or more

1. Number of children at residence or that you frequently interact with: _____
2. Age ranges of this(these) child(ren)? (mark all that apply)
   - Pre-K
   - K-2
   - 3-5
   - 6-8
   - 9-12
3. Do you read with these children aloud?
   - Yes (Continue to question 4)
   - No (Continue to question 7)
4. How often do you read with children?
   - Daily
   - Weekly
   - Monthly
   - Throughout the year but less than once a month
5. What do you read with your child(ren)?
   - Fiction
   - Non-Fiction

- Both

6. What do you use to read with your child(ren)? (mark all that apply)
   - Books
   - Magazines
   - IPad or other technology
   - Other_____
7. Where you read aloud to as a child?
   - Yes
   - No

Brief Description of the Actual Professional Development Training

My Parent Development was held in a variety of locations throughout my companies building: training rooms, lunch rooms, and my office. Due to this I was unable to use a PowerPoint for displaying information, instead I used anchor charts. I started with two anchor charts on display that had quotes about the importance of reading aloud. The first had information from http://www.readingrockets.org/reading-topics/reading-aloud, "Reading aloud is one of the most important things parents and teachers can do with children. Reading aloud builds many important foundational skills, introduces vocabulary, provides a model of fluent, expressive reading, and helps children recognize what reading for pleasure is all about." The second poster had a quote from http://www.reachoutandread.org/our-story/importance-of-reading-aloud/ , "Despite all of the benefits of reading aloud, surveys show that only a half of parents read to their young children daily and less than 10 percent read to their children from infancy. Families living in poverty are significantly less likely to read aloud to their infants and toddlers," as well as, "Only 17% of parents of kids ages 9–11 read aloud to their children. Yet 83% of kids ages 6–17 say being read to is something they either loved or liked a lot" (Scholastic's "Kids & Family Reading Report.) In a classroom setting where I would have access to computer and display I would have shown this reading report infographic http://www.scholastic.com/readingreport/reading-aloud.htm which succinctly relays this information and current statistics on reading aloud to students.

In a classroom, I would then show https://youtu.be/hj_qOqOuZd8 a five-minute video describing the importance of reading aloud called "Bringing Up Baby." Instead I discussed that reading aloud was critical for children to build skills such as book handling, understanding how texts work, recognition of sounds, letters and

words, knowledge of a wide range of vocabulary, and the ability to listen, while referring back to the first anchor chart.

Then I extrapolated that there are many reasons that adults don't read aloud to children. I believe this has to do with three key questions that adults ask themselves about reading aloud. First, how much time should you read aloud to children and when? Second, what should you read aloud to children? Third, how to keep children involved as you read aloud? We would be addressing these. These were summarized on an anchor chart with the words "Time, What to Read, Attention."

First, I discussed that a read aloud can be as short as 15 to 20 minutes, especially for younger readers. As students get older it would be recommended to stretch that time to 30 minutes. While some parents do this before a child goes to sleep that is not the only time that can be used. Parents and guardians need to find consistent time that works for them. For some that could be right after they get home from work, this give a child a parent's immediate attention after having been separated from them all day. Other parents choose right after dinner because the family is already together. The most important thing is to find a time that will have the fewest interruptions. This is a time for parent and child to have time together.

I then addressed that there are many things a parent can read aloud with a child. Books and magazines are the first thing that come to mind for most parents. I then showed them a variety of books both fiction and nonfiction that could be used: "Kitten's First Full Moon" by Henkes, "Max Goes to the Moon" by Bennett, "Margret and the Moon" by Robbins, "Moon" by Scholastic, "G is for Galaxy" by Campbell and Collison, "Comets, stars, the Moon and Mars" by Florian and "life as we knew it" by Pfeffer. While I showed these books, I expounded that parents should read a variety of things to their child both fiction and non-fiction as well as of a variety of lengths. At this time, I also passed out lists of STEM related books that could be read with their child. While books are prevalent in read alouds a parent can also read from the internet. Since I did not have a projector I could not show them but I included two NASA grade appropriate websites and Newsela as my examples.

Finally, I modeled reading part of two books for the adults. For this I passed out "Questioning During and After Read Aloud" handout. When I read the section from the picture book "Kitten's First Full Moon" I showed them how to hold the book for reading with people next to you or if it is a smaller group with children in front of

you. I also modeled tracking on this book so the adults could see that a child learns words by following along with the reading. Then I showed them how to use the questions to spur conversation and keep the child(ren) actively engaged. For some of the PD groups I was able to repeat this with a small section of the chapter book "life as we knew it." Lastly, I passed out the list of STEM Read Aloud Book List (Appendix C).

Brief Outline of the Activities in the Pick-up Unit

Participants were given a list of questions that could be used during and after the read aloud. These questions could be cut into strips and the listener/student could randomly draw a question to answer at any time in the reading or at the end of the read aloud. There were two lists one for lower elementary and one for upper elementary (see Appendix B).

What NASA data did you include?

Participants were shown that read alouds do not have to be only books. They were shown that there are websites with grade level appropriate reading materials that could be used further enhance the understanding of specific subjects.

NASA

https://www.nasa.gov/audience/forstudents/k-4/index.html

https://www.nasa.gov/audience/forstudents/5-8/index.html

NEWSELA

https://newsela.com/articles/#/rule/latest

Follow-up Activities & Post-questions Survey List

Parents, grandparents and guardians were encouraged to make reading part of their daily activities with the children they interact with. One follow-up activity suggested was to get the books listed on the website http://storytimefromspace.com/library/ . Then using this website have the students read along with the astronauts aboard the international space station.

Outcomes. Final Data Collection and Analysis

Comment on the content included in the project

If I was going to give this training in a school I would narrow it down to one grade level band. That way I could use and develop resources specific to that developmental age. It was difficult to have training that was applicable to pre-kindergarteners through fifth graders knowing that I could go more in-depth if I was just covering one grade. However, I had to cover this wider grade band because I did not know who was going to show up to my Parent Development sessions.

Comment on the pedagogy in the project

I used the anchor charts as a hook to get the participants interested. Throughout the presentation I had materials for them to read and take such as the Questioning During and After Read Aloud (Appendix B) and STEM Read Aloud Book List (Appendix C). All participants were encouraged to handle the books I brought in. This allowed them to see a variety of types of literature: the differences in genre, style, and length of books about the moon.

Was your professional development successful? Why or Why Not?

I believe my parent development was successful for a variety of reasons. Participants were active during the PD and asked questions throughout. Most importantly I think this because I have had some of those participants ask me for book recommendations since the training. This shows me that they are reading aloud to their students.

How did this project relate to the readings? Cite two examples.

As I developed the PD I kept thinking back to the article by Lustick, “Experienced Secondary Science Teachers’ Perceptions of Effective Professional Development while Pursuing National Board Certification”. It divided professional development into two distinct models, traditional and reform. While reading this article I saw the need for both types and believe my PD reflected this. I started traditionally with lecture and “addressing perceived knowledge and skill deficit” (Lustick, 2011). Later I transitioned to a discussion of how to do the read aloud and that included participants discussion what had worked for them using more of the reform model. I would continue to add more group participation if I had a longer time period in which to present.

One of the quotes that has stuck with me from our reading is by Fulton (2011), “learning is no longer preparation for the job; it is the job." With technology at everyone’s fingertips we need to show our youth that they can use it to further their own knowledge on just about anything. As I was putting together the list of STEM books to share from my own library I realized that a list of websites to have people read aloud from might be more useful. This would be an addition I would add to my PD.

Will the teacher do these activities again?

I would do this again in a school setting or parent development setting. This could be repeated yearly for new groups of parents and updated with new/additional STEM books.

Reflection

I believe this is a necessary and effective parent and professional development. Parents need to know the importance of reading aloud with their children. They also need to understand that it can and should continue into upper elementary and beyond. I believe that teachers know reading aloud is important but some need the exact same guidance that the parents do; when to read, how much, and how to keep the students engaged. Therefore, I think that both groups need PD on reading aloud on a regular basis.

Upon reflecting on the multiple times I gave this PD, the changes I would make have to do with the specific group I was presenting to. I would focus my presentation on the grade level I was doing PD for. This would allow more time on the modeling section. By modeling multiple types of books/literature for the same grade level I would be able to show how a teacher decides when to pause and ask question. I could also show ways of incorporating technology into getting more students to answer read aloud questions through online sites such as Google Surveys, Nearpods, and Backchannel Chat.

It would also be beneficial to have people practice reading aloud to each other. They could get feedback on their speed, enunciation, and general presentation. Teachers are not often observed during read alouds and therefore do not get the guidance needed to further their own growth. This is needed because by becoming better at reading aloud to their students, their students will be more engaged and become better readers in turn themselves.

I would also continue to add books to the STEM Read Aloud Book List. This list only included books that I have read and used in the classroom. There are many lists of STEM books on the internet but I believe I should know the book if I am going to recommend it to others. As I increase the use of STEM books in my own library I will continue to add to the list.

Appendix A

Standards Addressed

Kindergarten

Key Ideas and Details:
CCSS.ELA-LITERACY.RL.K.1
With prompting and support, ask and answer questions about key details in a text.

CCSS.ELA-LITERACY.RL.K.2
With prompting and support, retell familiar stories, including key details.

CCSS.ELA-LITERACY.RL.K.3
With prompting and support, identify characters, settings, and major events in a story.

Craft and Structure:
CCSS.ELA-LITERACY.RL.K.4
Ask and answer questions about unknown words in a text.

CCSS.ELA-LITERACY.RL.K.5
Recognize common types of texts (e.g., storybooks, poems).

Integration of Knowledge and Ideas:
CCSS.ELA-LITERACY.RL.K.7
With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).

Key Ideas and Details:
CCSS.ELA-LITERACY.RI.K.1
With prompting and support, ask and answer questions about key details in a text.

CCSS.ELA-LITERACY.RI.K.2
With prompting and support, identify the main topic and retell key details of a text.

CCSS.ELA-LITERACY.RI.K.3
With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.

Craft and Structure:
CCSS.ELA-LITERACY.RI.K.4
With prompting and support, ask and answer questions about unknown words in a text.

CCSS.ELA-LITERACY.RI.K.5
Identify the front cover, back cover, and title page of a book.

CCSS.ELA-LITERACY.RI.K.6
Name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.

Integration of Knowledge and Ideas:
CCSS.ELA-LITERACY.RI.K.7
With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).

CCSS.ELA-LITERACY.RI.K.8
With prompting and support, identify the reasons an author gives to support points in a text.

CCSS.ELA-LITERACY.RI.K.9
With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).

Print Concepts:
CCSS.ELA-LITERACY.RF.K.1
Demonstrate understanding of the organization and basic features of print.

CCSS.ELA-LITERACY.RF.K.1.A
Follow words from left to right, top to bottom, and page by page.

CCSS.ELA-LITERACY.RF.K.1.B
Recognize that spoken words are represented in written language by specific sequences of letters.

CCSS.ELA-LITERACY.RF.K.1.C
Understand that words are separated by spaces in print.

CCSS.ELA-LITERACY.RF.K.1.D
Recognize and name all upper- and lowercase letters of the alphabet.

5th Grade

Key Ideas and Details:
CCSS.ELA-LITERACY.RL.5.1
Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-LITERACY.RL.5.2
Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.

CCSS.ELA-LITERACY.RL.5.3
Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).

Craft and Structure:
CCSS.ELA-LITERACY.RL.5.4
Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.

CCSS.ELA-LITERACY.RL.5.5
Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.

CCSS.ELA-LITERACY.RL.5.6
Describe how a narrator's or speaker's point of view influences how events are described.

Integration of Knowledge and Ideas:
CCSS.ELA-LITERACY.RL.5.7
Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).

CCSS.ELA-LITERACY.RL.5.9
Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.

Range of Reading and Level of Text Complexity:
CCSS.ELA-LITERACY.RL.5.10
By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4-5 text complexity band independently and proficiently

Key Ideas and Details:
CCSS.ELA-LITERACY.RI.5.1
Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-LITERACY.RI.5.2
Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

CCSS.ELA-LITERACY.RI.5.3
Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

Craft and Structure:
CCSS.ELA-LITERACY.RI.5.4
Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

CCSS.ELA-LITERACY.RI.5.5
Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.

CCSS.ELA-LITERACY.RI.5.6
Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

Integration of Knowledge and Ideas:
CCSS.ELA-LITERACY.RI.5.7
Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

CCSS.ELA-LITERACY.RI.5.8
Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

CCSS.ELA-LITERACY.RI.5.9
Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

Range of Reading and Level of Text Complexity:
CCSS.ELA-LITERACY.RI.5.10
By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

Phonics and Word Recognition:
CCSS.ELA-LITERACY.RF.5.3
Know and apply grade-level phonics and word analysis skills in decoding words.

CCSS.ELA-LITERACY.RF.5.3.A
Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

Fluency:
CCSS.ELA-LITERACY.RF.5.4
Read with sufficient accuracy and fluency to support comprehension.

CCSS.ELA-LITERACY.RF.5.4.A
Read grade-level text with purpose and understanding.

CCSS.ELA-LITERACY.RF.5.4.B
Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.

CCSS.ELA-LITERACY.RF.5.4.C
Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Appendix B
Questioning During and After Read Aloud
Suggestion: Cut into strips and have child pull one from a cup, jar to answer

Lower Elementary Questions
- What can you tell me about (topic)?
- Why do you think I chose this book to read to you?
- Why might we want to read this book?
- What do you think this book might be about?

- What would you tell a good friend about this book?
- What is your favorite illustration? Why?
- What did you learn from this book that surprised you or you did not know before?
- What do you think is the most important information in this book?
- What have we read about today?

Upper Elementary Questions

- What fact(s) or part of the story did you enjoy the most? Why?
- Of the information you learned, which would you like to share with someone else? Why?
- Would you like to read more books about this topic? Why?
- What else would you like to learn about this topic?
- What pictures or illustrations did you find interesting? Why?
- Is this book like any other book that you have read? If so, how are they alike? How are they different? Which one did you like better? Why?
- What kind of research do you think the author had to do to write this book?
- What questions would you ask the author if you ever had the opportunity to meet him/her?
- How can you learn more about this topic?
- Would the book be different if it had been written 10 years ago?
- Did you discover anything that may help you outside of school?
- Does the author try to persuade you in any way? How?
- Can you identify the facts? The opinions?
- What new information did you learn? How can you apply this information to an issue or problem in today's world? How did this new information change your way of thinking about this subject?
- What words, phrases, or statements does the author use that caught your attention? Why? How did they make you feel? What did they make you think?
- Did the author weave opinion and fact statements into the piece? Find examples of each.
- Were there any photographs, illustrations, charts, graphs, or diagrams that were important? Select two or three and show what you learned from them and explain why you believe each one was important.
- Did the reading leave you with unanswered questions? What are these?
- How did you connect to the piece? Was it personal? Was it an issue that affects your community and the world? Explain.

Appendix C

STEM Read Aloud Book List

Picture Books

Whoosh!: Lonnie Johnson’s Super-Soaking Stream of Inventions by Chris Barton
Ada Twist, Scientist by Andrea Beaty
Rosie Revere, Engineer by Andrea Beaty
What Do You Do with an Idea by Andrea Beaty

What Do You Do with a Problem by Andrea Beaty
Max Goes to the Moon by Jeffrey Bennet
Max Goes to the International Space Station by Jeffery Bennet
The Most Magnificent Thing by Ashley Spires
Math Appeal by Greg Tang
Math Fables by Greg Tang
Math Potatoes by Greg Tang

Chapter Books
The Phantom Tollbooth by Norton Juster
The Boy Who Harnessed the Wind by William Kamkwamba
The Evolution of Calpurnia Tate by Jacqueline Kelly
life as we knew it by Susan Beth Pfeffer
The Invention of Hugo Cabret by Brian Selznick

Any non-fiction book about science, technology, engineering, and math.

Appendix D

Include the names and contact information of four people who attended the PD

Damon Duggins 619-777-0310

Scott Ferdinand 623-935-0093

Wayne Finch 760-468-4175

Ariel O’Brien 623-326-4203

References

Fulton, Kathleen and Britton, Ted (2011). STEM Teachers in Professional Learning Communities: From Good Teachers to Great Teaching. National Commission on Teaching and America's Future: Washington, DC.

Lustick, D.S. (2011). Experienced Secondary Science Teachers' Perceptions of Effective Professional Development while Pursuing National Board Certification.