Homework Assignments

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| **Session** | **Written Assignments are due the following week unless otherwise noted** |
| 1Adddates in thiscolumn | READING:* Preschool Learning Foundations: Volume 3: Science. Pages: 48-72 <http://www.cde.ca.gov/sp/cd/re/documents/preschoolfoundationsvol3.pdf>

WRITTEN ASSIGNMENT:* Reflect on the paper-copter activity we did in class and write about how it connects with the California Preschool Science Foundations. Write one paragraph on the connection to the Science Inquiry strand **and** one paragraph on the connection to Physical Science strand.
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| 2 | READING:* California Preschool Math Foundations: Volume 1: Mathematics. Pages 143-159.

 <http://www.cde.ca.gov/sp/cd/re/documents/preschoollf.pdf>* Reader Section 2: *Making the Most of Water Play* (article)
* Reader Section 2: Sample family letter from *Exploring Water with Young Children*

WRITTEN ASSIGNMENTS:* Provide at least one example how water play can help develop young children’s skills and understanding in **each** of the math strands (Number Sense, Algebra and Functions, Measurement, Geometry, Mathematical Reasoning) described in the Foundations in Mathematics (pp. 145-147).
* What do you think the benefits are of sending home a family letter (such as the sample letter from *Exploring Water with Young Children*) that describes to parents how children will be investigating water in their classroom? Explain the benefits to the teacher, the parents, and the children. Write a 1-2 paragraph response.
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| 3 | READING:* Introduction and Chapter 1 from *Big Ideas of Early Mathematics* textbook.
* Reader Section 3: “A Constructivist Curriculum Model for Science” (book excerpt) Chapter 2 from *The Young Child as Scientist: A Constructivist Approach to Early Childhood Science Education*
* Exemplar Activity Guide: Sink and Float

WRITTEN ASSIGNMENTS: * How might you explain to a parent that sorting is “doing math”? Write a one-paragraph response.
* What ideas from the reading on a constructivist curriculum model for science would you like to implement in your classroom and why? Write a 1-2 paragraph response.
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| **Session** | **Written Assignments are due the following week unless otherwise noted** |
| 4 | READING:* Reader Section 4: *Investigating Rocks and Sand: Addressing Multiple Learning Styles Through an Inquiry-Based Approach* (article)
* Reader Section 4: “Timely Questions” (book excerpt) from *Science and Math Explorations for Young Children*
* Exemplar Activity Guide: Exploring Rocks

WRITTEN ASSIGNMENTS:* How did the teachers’ approach to the classroom investigation on rocks described in *Investigating Rocks and Sand* reflect principles of constructivism? Write a 1-2 paragraph response.
* Define divergent and convergent questions. Give 3 examples of each that you might ask children during a science or math learning experience.
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| 5 | READING:* Chapter 6: “Measurement” in *Big Ideas of Early Mathematics* textbook
* Reader Section 5: *Sensory Experiences Can Be Messy Fun* (article)
* Reader Section 5: Discovery Bottles handout
* Exemplar Activity Guide: Solids and Liquids

WRITTEN ASSIGNMENTS:* In the Measurement chapter, the authors suggest that traditional instruction in measurement moves too fast. What do they mean by that? What kinds of foundational experiences do young children need before standard or conventional measurement? Write a 1-2 paragraph response.

DISCOVERY BOTTLE* Make a Discovery Bottle to bring to class next week. Read through the handout on Discovery Bottles for ideas, but feel free to invent you own combination of ingredients! Avoid combinations in which the solid gets mushy or dissolves into the liquid. There are endless possibilities -- clear or colored water with glitter, or buttons, beads, straw pieces or crayons shavings. Other liquids you could use are corn syrup, liquid soap, or oil. See what happens when you tip the bottle from side to side and turn it upside down. You may want to use duct tape or packing tape to secure the lid.

**MIDTERM ASSIGNED (3 weeks to complete)** |
| **Session** | **Written Assignments are due the following week unless otherwise noted** |
| 6 | READING:* Reader Section 6: “Cooking Transformations” (book excerpt) Chapter 6 from *Developing Early Childhood Constructivist Curriculum*
* Exemplar Activity Guide: Bubbles

WRITTEN ASSIGNMENT:* How did the reading affect your ideas about cooking with young children in terms of considering cooking part of the science program? What did you learn that you would like to put into practice in your classroom (now or in the future)?  Write a 2-3 paragraph response.
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| 7 | No reading assigned. Work on Midterm Project |
| 8 | READING:* Chapter 2: “Number Sense” in *Big Ideas of Early Mathematics* textbook
* Exemplar Activity Guide: Baking Soda and Vinegar

WRITTEN ASSIGNMENTS: The following assignments are due Week 10 (extra week given due to Midterm):* Number sense can mean many different things to different people. What is the authors’ definition?
* Describe the mathematical ability called “subitizing.”
* Watch the video clip “Number Arrangements” associated with this chapter. What do you think the children gain from exploring small numbers through these activities? Write a 1-2 paragraph response. **Note:** You can either watch the video on the dvd that comes with the book, or access it online at <http://earlymath.erikson.edu/number-arrangements-online-math-curriculum-education/>
* **Midterm Assignment is due next week.**
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| 9 | **MIDTERM ASSIGNMENT DUE.** Complete homework assigned on Week 8.  |
| 10 | READING:* Chapter 3: “Counting – More Than Just 1,2,3” in *Big Ideas of Early Mathematics* textbook
* Exemplar Activity Guide: Exploring Trees

WRITTEN ASSIGNMENTS:* Explain the difference between rote and rational counting.
* What is your reaction to the authors’ criticism of the traditional way the calendar routine is done in preschool and kindergarten? Do you agree or disagree? Why? Write a one-paragraph response.
* Watch the video “Movement Counts” associated with this chapter. What is the value of matching movements to the counting words with one-to-one correspondence? Write a one-paragraph response. **Note:** You can either watch the video on the dvd that comes with the book or access it online at http://earlymath.erikson.edu/movement-counts/
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| **Session** | **Written Assignments are due the following week unless otherwise noted** |
| 11 | READING:* Chapter 4: “Number Operations” in *Big Ideas of Early Mathematics* textbook
* Reader Section 11: “Introduction” from *Sowing the Seeds of Wonder (*book excerpt)
* Exemplar Activity Guide: Investigating Soil

WRITTEN ASSIGNMENTS:* Imagine this scenario: You’re the teacher in a preschool classroom. A parent whose child will be going to kindergarten next year shares with you that he is worried that his child doesn’t know how to add and subtract yet. He tells you that he’s been working with his child at home doing addition and subtraction problems such as 2+3=? or 6-3=? but that his child needs more practice. He asks if you could do these types of worksheets in school. Think about how you would respond to this parent and write a 2-3 paragraph response explaining:
* How would you share your perspective about appropriate pre-k math while respecting his perspective?
* What activities could you suggest he do with his child at home to prepare for kindergarten math that would be more developmentally appropriate than doing worksheets with arithmetic equations?
* How did reading the Introduction from *Sowing the Seeds of Wonder* affect how you think about gardening with young children? Write a one-paragraph response.
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| 12 | READING* Chapter 5: “Pattern” in *Big Ideas of Early Mathematics* textbook
* Reader Section 12: *Science Education through Gardening and Nature-Based Play* (article)
* Exemplar Activity Guide: Discovering Seeds

WRITTEN ASSIGNMENTS* Define and give an example of the following types of patterns. You may draw examples if you like.
* Visual Patterns, Auditory patterns, Movement patterns, Temporal patterns, Repeating pattern, Growing patterns, Linear patterns, Non-linear patterns
* Define the following terms:
* Unit of repeat, Pattern structure
* Gardening and nature-based projects and experiences are rich with opportunities for parent involvement and building the home/school connection. What are some ways you could involve parents in gardening and nature-based activities? Write a 1-2 paragraph response.

**REFLECTIVE ESSAY ASSIGNED** (2 weeks to complete) |
| **Session** | **Written Assignments are due the following week unless otherwise noted** |
| 13 | READING:* Chapter 7: “Data Analysis” in *Big Ideas of Early Mathematics* textbook
* Reader Section 13: *Ramps and Pathways* (article)
* Exemplar Activity Guide: Investigating Earthworms

WRITTEN ASSIGNMENTS:* The authors of *Big Ideas of Early Mathematics* recommend that teachers spend a greater proportion of time analyzing data results than on collecting and organizing the data. Do you agree? Why or why not? Write a 1-2 paragraph response.
* As you read the *Ramps and Pathways* article, make a list of reasons why Ramps and Pathways activities are so worthwhile for young children to do. List at least 10 reasons.
* **Reflective Essay due next week.**
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| 14 | READINGS* Chapter 8: “Spatial Relationships” in *Big Ideas of Early Mathematics* textbook
* Reader Section 14: *Block Play: It’s Not Just for Boys Anymore* (article)
* Exemplar Activity Guide: Ball Runs

WRITTEN ASSIGNMENTS:* Research has documented gender differences in spatial ability even before the time children enter kindergarten. As a teacher, what do you do, or would you do, to ensure that girls as well as boys participate in the kind of play that develops spatial skills? Write a 1-2 paragraph response.
* What is your reaction to the gender differences described in the article about block play? What have been your own observations and experiences relating to block play and gender? Write a 1-2 paragraph response.

**REFLECTIVE ESSAY DUE****FINAL PAPER ASSIGNED** (3 weeks to complete. Due Session 17) |
| 15 | READINGS:* Chapter 9: “Shape” from *Big Ideas of Early Mathematics* textbook
* Reader Section 15: *Promoting Creativity for Life Using Open-Ended Materials* (article)

WRITTEN ASSIGNMENTS:* Explain what you found most useful in the chapter on Shape and why. Write a 1-2 paragraph response.
* As you read the article on creativity, list and explain at least 3 examples of how creative art experiences simultaneously contribute to developing children’s scientific and mathematical abilities and interests.
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| 16 | * Exemplar Activity Guide: Invention Center
* **FINAL PAPER due next week.**
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