

**Three Rivers Community College  
ECE K109 Science and Math for Children  
Course Materials**

**Spring 2013**



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**Course Description:**

Prerequisite: ENG\* K101 eligibility and ECE K101 or permission of the Program Coordinator based on ECE work experience. ECE K182 is recommended.

In this course, students will acquire an understanding of the materials and methods of working with young children. The focus will be on math and science and their integration into the early childhood curriculum. Emphasis will be placed on understanding these areas from a child development perspective. Active participation working with children will be required.

**Required Texts:**

Charlesworth, Rosalind Karen Lind. Math and Science for Young Children (7<sup>th</sup> Ed.). Thompson Delmar Learning. 2013. ISBN: 9781111833398

Additional readings will be assigned throughout the semester.

**Course Objectives:**

- Provide students with an opportunity to apply theories of child development to learning experiences with young children.
- Offer child-orientated experiences in order to stimulate children's curiosity.
- Support the young child's natural desire to explore and learn.
- Discover how to make simple low-cost materials in order to teach science and math concepts.
- Discover strategies that aid in the development of problem-solving skills of young children.

**General Education Goals:**

- Candidates will develop the skills and abilities to communicate effectively in writing.
- Candidates will develop information literacy to assess what information is needed to answer questions and to retrieve, evaluate, and use that information effectively.

**Course Outcomes:**

- Candidates will reflect on the major theoretical approaches that include Piaget, Vygotsky, Gardner, and Kamii. (NAEYC 1.a.)
- Candidates will understand what young children are like and what the multiple influences are on their development and learning. (NAEYC Standard 1.a. and 1.b.)
- Candidate will learn integrative approaches to curriculum by designing a web which includes learning experiences ample lesson plans written in a specific format. (NAEYC Standard 4.b. and 4.c.)
- Candidate will apply developmentally appropriate practices in math and science lessons. (NAEYC Standard 1.a., 1.b. and 5.a.)

- Candidates will analyze the importance of being a continuous and collaborative learner. (NAEYC Standard 6.c.)

**Policies:**

Active participation in class discussions and activities is required. Candidates are expected to complete assigned readings prior to class and come to class prepared to discuss them. Candidates **must utilize the Blackboard Learning System**, to review course materials, and view articles and other materials for the course. Throughout the course there will be other written assignments to help guide your studies which will be handed in and counted as part of your participation grade.

Class attendance is required. The greatest amount of learning occurs during class time, where group activities and interactive assignments allow for learning not covered by the text and required assignments. Two late arrivals or early departures may count as one missed class. For each class missed five to ten points may be deducted, upon the fourth absence you may be asked to withdraw from the class. Attendance is taken at the beginning of class. Lateness is disruptive, discourteous and usually unwarranted. Please be on time.

Candidates are urged to devote their time and energy to fulfilling stated class requirements. Please note that a credit hour 'work expectation' equates to one hour of classroom or direct faculty instruction and a minimum of two hours of out of class candidate work. **So for this three credit course you should expect to spend a minimum of three in class and six out of class hours (total of nine hours) per week on this course.**

Extra credit points may be considered if a candidate is active in the Early Childhood Education Club, participates in early childhood events, or tutors / supports another classmate in their understanding of course content. Additionally, with prior permission, there may be an opportunity to redo and resubmit an assignment. These opportunities will be decided on a one-on-one basis.

It is assumed that all assignments will be completed and turned in on time. Fifteen points will be deducted from a late assignment. Assignments will not be accepted beyond a one-week extension. Late assignments cannot be rewritten or resubmitted.

Spelling and grammar will be included as part of the grade for all written work. Thus, proper spelling and careful proofreading are important. A candidate's written work is expected to be original and done independently unless otherwise indicated. Citations and references must be used to **acknowledge the source and avoid plagiarism**. Violations of academic integrity will be referred to the dealt with in accordance with the college policy.

Take home tests will not be accepted beyond the scheduled due date. Make-ups for in class, scheduled tests is not allowed, unless arrangements are made with the instructor in advance. Make-ups must be done in a timely manner.

Lap top computers and tape recorders may be used during class time, with prior permission and for the purpose of note taking only. Computers and other forms of technology are prohibited during tests. Cell phones, pagers, ipods, and other similar devices must be turned off during class. **Texting or using your cell phones during class is not acceptable and you may be asked to leave the class.**

As part of the course, candidates may be required to spend additional time observing and/or working with children in actual or simulated child development settings. The candidate is responsible for all materials covered in class as well as the assignments. If a candidate misses a class, it is the candidate's responsibility to get the notes from another candidate. **Do not contact the instructor and ask for a review of the class.** Learn to rely on your syllabus and / or another candidate. You may want to share your contact information with other candidates to help facilitate this process. If you have problems with the course or material, please see me or call to arrange for an appointment. Candidates who are not able to complete the course need to speak to me immediately as we will try to work together to have you complete the class successfully.

Candidates with disabilities who may need academic accommodations should discuss options with the instructor as early as possible. You will need to provide written documentation of your disability to the Candidate Services Counselors (Disabled Candidate Counselor). Appropriate accommodations will be provided to candidates who have completed this procedure.

TRCC does not follow the local school closing schedule. The TRCC website offers the most updated information about school closings and / or early dismissals. It is recommended that all candidates sign up for the electronic notification system to receive instant alerts and messages. In the event that class is cancelled, separate from the college, the instructor may notify candidates using the Blackboard messaging system and / or the email contact available through TRCC. Please be sure the college has your updated contact information.

Please refer to the Institutional Policies available in the Office of the Dean of Candidate Development and Services as well as on line, which include regulations regarding candidate conduct and the disciplinary code.

This syllabus is subject to change. Any changes will be announced.

**Points given for requirements are as follows:**

*Please use this as a tool to keep a record of your progress in this course.*

<b>Assignment</b>	<b>Points</b>	<b>Due Date</b>	<b>Grade Received</b>
Science Portfolio Assignment	100		
Math Portfolio Assignment	100		
First Test (Chapters 1 – 4, 15, 20, 22, 31, 39 - 41)	50		
Second Test (Chapters 5 – 7, 12 – 14, 16, 21, 26, 33 - 37)	75		
Third Test (Chapters 8 – 11, 17 – 19, 23 – 25, 27 – 30, 32)	75		
Attendance	50		
Participation ( <i>article reviews included</i> )	50		
<b>Total</b>	<b>500</b>		

**Final Grade:**

To determine your final grade take the total number of points and divide by five.

B+	87 - 89	A	93 - 100	A-	90 - 92
C+	77 - 79	B	83 - 86	B-	80 - 82
D+	67 - 69	C	73 - 76	C-	70 - 72
F	under 59	D	63 - 66	D-	60 - 62

*“Good teaching is one-fourth preparation and three-fourths pure theatre.”  
- Gail Godwin*

**Three Rivers Community College**  
**ECE K109 Science and Math for Young Children**  
**Professor DeFrance**  
**Spring 2013 Course Content and Study Guide**

<b>Week</b>	<b>Activities / Assignments</b>	<b>Reading</b>	<b>Key Concepts</b>	<b>NAEYC</b>
1/20	Orientation / Introductions Review Course Syllabus	NAEYC Standards	participation	
1/27	Review Science Portfolio	Chapters 1 - 4	Confidentiality Concept development	Standards 1.a., 1.b., 4.a., 4.b., 5.a., 5.b., 6.a. and 6.c. Supportive Skills 1 – 4
2/3	Article Review: <u>The Power of Play</u>	Chapter 15 and 22	Language development play	Standard 1.a., 1.b., 1.c., 3.b., and 4.a. Supportive Skill 1 - 4
2/10	Article Review: <u>The Intentional Teacher</u>	Chapter 20 and 31	Data and graphing	Standard 1.a., 1.b., 3.b., 3.c., 4.b., 5.a., and 5.b. Supportive Skill 1 - 4
2/17	<b>No class on Monday</b>  Handout Test One	Chapter 39, 40 and 41	Science and Math materials	Standard 1.a., 1.b., 3.b., 4.b., and 4.c., 5.a., 5.b., and 5.c. Supportive Skill 1 – 4
2/24	<b>Test One Due</b>	Chapters 5 - 7	Basics of science	Standard 1.a., 1.b., 3.b., 4.b., and 4.c., 5.a., 5.b., and 5.c. Supportive Skill 1 – 4
3/3	Review Mathematics Portfolio	Chapter 16, 21 and 26	Comparing Ordering Patterning	Standard 1.a., 1.b., 3.b., 4.a., 4.b., 5.a., and 5.b. Supportive Skill 1 – 4
3/10	Article review: <u>Building Structures</u>	Chapters 12 - 14	Geometry Parts and wholes	Standard 1.a., 1.b., 3.b., 4.b., and 4.c., 5.a., 5.b., and 5.c. Supportive Skill 1 – 4
3/17	Spring Break	Spring	Break	Spring Break
3/24	<b>Science Portfolio Due</b>	Chapters 33 - 35	Life Science Physical	Standard 1.a., 1.c., 3.b., 4.a., 4.b., 5.a., and

	<b>No class on Friday</b>		science	5.b. Supportive Skill 1 – 4
<b>Week</b>	<b>Activities / Assignments</b>	<b>Textbook</b>	<b>Key Concepts</b>	<b>NAEYC</b>
3/31	Handout Test Two	Chapter 36 and 37	Environmental science Earth and space	Standard 1.a., 1.c., 3.b., 4.a., 4.b., 5.a., and 5.b. Supportive Skill 1 – 4
4/7	<b>Test Two Due</b>	Chapters 8 - 11	Basics of Mathematics	Standard 1.a., 1.b., 3.b., 4.b., and 4.c., 5.a., 5.b., and 5.c. Supportive Skill 1 – 4
4/14		Chapter 17 and 28	Ordering Patterns	Supportive Skill 1 - 5
4/21		Chapter 18, 19 and 32	Measuring	Standard 1.a., 1.b., 3.b., 4.a., 4.b., 5.a., and 5.b. Supportive Skill 1 - 4
4/28	<b>Math Portfolio Due</b>	Chapters 23 – 25	Symbols	Standard 1.c., 3.a., 3.b., 4.a., 4.b., 5.a., and 5.b. Supportive Skill 1 – 4
5/5	Article review: <u>Developing Math Games</u>	Chapter 27, 29 and 30	Algebraic thinking	Standard 1.c., 3.b., 4.a., 4.b., 5.a., and 5.b. Supportive Skill 1 - 4
5/12	<b>Test Three</b>			Supportive Skills 1 - 5

This calendar is subject to change. Any changes will be announced.



**Three Rivers Community College  
ECE K109 Science and Math  
Resource List**

**Jennifer DeFrance Ed.D.**

- \_\_\_\_\_. (2012). Connecticut standards for math practice, Kindergarten. DOE.
- \_\_\_\_\_. (2012). Connecticut standards for math practice, First grade. DOE.
- \_\_\_\_\_. (2012). Connecticut standards for math practice, Second grade. DOE.
- \_\_\_\_\_. (2000). *Children as mathematicians [Focus issue]. Teaching Children Mathematics*, 6.

Chalufour, Ingrid & Karen Worth. *Building structures with young children*. Young Scientist Series. NAEYC. Pages 73 - 79.

Charlesworth, R. (2013). *Math and science for young children*. (7<sup>th</sup> ed.). Cengage Learning.

Clements, D. H. (2001). *Mathematics in the preschool. Teaching Children Mathematics*, 7, 270–275.

Clements, D. H., & Sarama, J. (2000). *The earliest geometry. Teaching Children Mathematics*, 7, 82–86.

Clements, D. H., & Sarama, J. (2000). *Standards for preschoolers. Teaching Children Mathematics*, 7, 38–41.

Cutler, K. M., Gilkerson, D., Parrott, S. & Bowne, M. T.. *Developing math games based on children's books*. Teaching Young Children magazine. Vol 2, Number 2.

DelCampo, D. & DelCampo, R. (2006). *Taking sides: Clashing views in childhood and society*. (6<sup>th</sup> ed.). McGraw-Hill.

Derman-Sparks, L. & Edwards, J. O.. (2010). *Anti-Bias education for young children and ourselves*. Washington, DC: NAEYC.

Elkind, David. *The power of play: Learning what comes naturally*. Da Capo Books, 2007. Pages 119 - 144.

Epstein, Ann. *The intentional teacher: Choosing the best strategies for young children's learning*. NAEYC. July 2007.

Flick, L., & Lederman, M. (2004). *Scientific Inquiry and Nature of Science*. Boston, MA: Kluwer Academic Publishers.

Gallagher, K. C. (2005). Brain research and early childhood development: A primer for developmentally appropriate practice. *Spotlight on Young Children*. Washington DC: NAEYC.

Jacobs, H. H. (2010). *Curriculum 21: Essential education for a changing world*. ASCD Publications.

Lederman, N. & Lederman, J. (2004). *Revising instruction to teach nature of science: Modifying activities to enhance students' understanding of science*. The Science of Teacher, November.

Matricardi, J. & McLarty, J. (2005). *Math activities A to Z*. Delmar Cengage Learning.

Matricardi, J. & McLarty, J. (2005). *Science activities A to Z*. Delmar Cengage Learning.

National Research Council. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: The National Academy Press.

Sanders, S. (2005). *Active for life*. Washington, DC: NAEYC.

Voltz, D., Sims, M. J. & Nelson, B. (2010). *Connecting teachers, students and standards: Strategies for success in diverse and inclusive classrooms*. ASCD.

# **NAEYC Standards for Early Childhood Professional Preparation Programs**

## **A position statement of the National Association for the Education of Young Children**

### **Introduction**

NAEYC Standards for Early Childhood Professional Preparation Programs represents a sustained vision for the early childhood field and more specifically for the programs that prepare the professionals working in the field. This 2009 revision of the standards is responsive to new knowledge, research and conditions while holding true to core values and principles of the founders of the profession. It is designed for use in a variety of ways by different sectors of the field while also supporting specific and critical policy structures, including state and national early childhood teacher credentialing, national accreditation of professional early childhood preparation programs, state approval of early childhood teacher education programs, and articulation agreements between various levels and types of professional development programs.

### **History**

NAEYC has a long-standing commitment to the development and support of strong early childhood degree programs in institutions of higher education. NAEYC standard setting for degree programs in institutions of higher education began more than 25 years ago. This document is the third revision to NAEYC's Early Childhood Teacher Education Guidelines for Four- and Five-Year Programs (1982) and Guidelines for Early Childhood Education Programs in Associate Degree Granting Institutions (1985).

### **Standards Summary**

#### **Standard 1. Promoting Child Development and Learning**

Candidates prepared in early childhood degree programs are grounded in a child development knowledge base. They use their understanding of young children's characteristics and needs and of the multiple interacting influences on children's development and learning to create environments that are healthy, respectful, supportive, and challenging for each child.

Key elements of Standard 1

- **1a:** Knowing and understanding young children's characteristics and needs
- **1b:** Knowing and understanding the multiple influences on development and learning
- **1c:** Using developmental knowledge to create healthy, respectful, supportive, and challenging learning environments

Supporting explanation

The early childhood field has historically been grounded in a child development knowledge base, and early childhood programs have aimed to support a broad range of positive developmental outcomes for all young children. Although the scope and emphasis of that knowledge base have changed over the years and while early childhood professionals recognize that other sources of knowledge are also important influences on curriculum and programs for young children, early childhood practice continues to be deeply linked with a "sympathetic understanding of the young child" (Elkind 1994). Well-prepared early childhood degree candidates base their practice on sound

**knowledge and understanding of young children’s characteristics and needs.** This foundation encompasses multiple, interrelated areas of children’s development and learning—including physical, cognitive, social, emotional, language, and aesthetic domains; play, activity, and learning processes; and motivation to learn—and is supported by coherent theoretical perspectives and by current research.

Candidates also understand and apply their understanding of the **multiple influences on young children’s development and learning** and of how those influences may interact to affect development in both positive and negative ways. Those influences include the cultural and linguistic contexts for development, children’s close relationships with adults and peers, economic conditions of children and families, children’s health status and disabilities individual developmental variations and learning styles, opportunities to play and learn, technology and the media, and family and community characteristics. Candidates also understand the potential influence of early childhood programs, including early intervention, on short- and long-term outcomes for children.

Candidates’ competence is demonstrated in their ability to **use developmental knowledge to create healthy, respectful, supportive, and challenging learning environments** for all young children (including curriculum, interactions, teaching practices, and learning materials).

## **Standard 2. Building Family and Community Relationships**

Candidates prepared in early childhood degree programs understand that successful early childhood education depends upon partnerships with children’s families and communities. They know about, understand, and value the importance and complex characteristics of children’s families and communities. They use this understanding to create respectful, reciprocal relationships that support and empower families and to involve all families in their children’s development and learning.

Key elements of Standard 2

- **2a:** Knowing about and understanding diverse family and community characteristics
- **2b:** Supporting and engaging families and communities through respectful, reciprocal relationships
- **2c:** Involving families and communities in their children’s development and learning

Supporting explanation

Because young children’s lives are so embedded in their families and communities and research indicates that successful early childhood education depends upon partnerships with families and communities, early childhood professionals need to thoroughly understand and apply their knowledge in this area.

First, well-prepared candidates possess **knowledge and understanding of diverse family and community characteristics** and of the many influences on families and communities. Family theory and research provide a knowledge base. Socioeconomic conditions; family structures, relationships, stresses, and supports (including the impact of having a child with special needs); home language; cultural values; ethnicity; community resources, cohesiveness, and organization—knowledge of these and other factors creates a deeper understanding of young children’s lives. This knowledge is critical to the candidates’ ability to help children learn and develop well.

Second, candidates possess the knowledge and skills needed to **support and engage diverse families through respectful, reciprocal relationships**. Candidates understand how to build positive relationships, taking families' preferences and goals into account and incorporating knowledge of families' languages and cultures. Candidates demonstrate respect for variations across cultures in family strengths, expectations, values, and childrearing practices. Candidates consider family members to be resources for insight into their children, as well as resources for curriculum and program development. Candidates know about and demonstrate a variety of communication skills to foster such relationships, emphasizing informal conversations while also including appropriate uses of conferencing and technology to share children's work and to communicate with families.

Finally, well-prepared candidates possess essential skills to **involve families and communities in many aspects of children's development and learning**. They understand and value the role of parents and other important family members as children's primary teachers. Candidates understand how to go beyond parent conferences to engage families in curriculum planning, assessing children's learning, and planning for children's transitions to new programs. When their approaches to family involvement are not effective, candidates evaluate and modify those approaches rather than assuming that families "are just not interested."

### **Standard 3. Observing, Documenting, and Assessing to Support Young Children and Families**

Candidates prepared in early childhood degree programs understand that child observation, documentation, and other forms of assessment are central to the practice of all early childhood professionals. They know about and understand the goals, benefits, and uses of assessment. They know about and use systematic observations, documentation, and other effective assessment strategies in a responsible way, in partnership with families and other professionals, to positively influence the development of every child.

Key elements of Standard 3

- **3a:** Understanding the goals, benefits, and uses of assessment
- **3b:** Knowing about and using observation, documentation, and other appropriate assessment tools and approaches
- **3c:** Understanding and practicing responsible assessment to promote positive outcomes for each child
- **3d:** Knowing about assessment partnerships with families and with professional colleagues

Supporting explanation

Although definitions vary, in these standards the term *assessment* includes all methods through which early childhood professionals gain understanding of children's development and learning. Ongoing, systematic observations and other informal and formal assessments are essential for candidates to appreciate children's unique qualities, to develop appropriate goals, and to plan, implement, and evaluate effective curriculum. Although assessment may take many forms, early childhood candidates demonstrate its central role by embedding assessment-related activities in curriculum and daily routines so that assessment becomes a habitual part of professional life.

Well-prepared early childhood candidates can explain the central **goals, benefits, and**

**uses of assessment.** In considering the goals of assessment, candidates articulate and apply the concept of *alignment*—good assessment is consistent with and connected to appropriate goals, curriculum, and teaching strategies for young children. The candidates know how to use assessment as a positive tool that supports children’s development and learning and improves outcomes for young children and families. Candidates are able to explain positive uses of assessment and exemplify these in their own work, while also showing an awareness of the potentially negative uses of assessment in early childhood programs and policies.

Many aspects of effective assessment require collaboration with families and with other professionals. Through **partnerships with families and with professional colleagues**,

candidates use positive assessment to identify the strengths of families and children. Through appropriate screening and referral, assessment may also result in identifying children who may benefit from special services. Both family members and, as appropriate, members of inter-professional teams may be involved in assessing children’s development, strengths, and needs. As new practitioners, candidates may have had limited opportunities to experience such partnerships, but they demonstrate essential knowledge and core skills in team building and in communicating with families and colleagues from other disciplines.

Early childhood assessment includes **observation and documentation and other appropriate assessment strategies**. Effective teaching of young children begins with thoughtful, appreciative, systematic observation and documentation of each child’s unique qualities, strengths, and needs. Observation gives insight into how young children develop and how they respond to opportunities and obstacles in their lives. Observing young children in classrooms, homes, and communities helps candidates develop a broad sense of who children are- as individuals, as group members, as family members, as members of cultural and linguistic communities. Candidates demonstrate skills in conducting systematic observations, interpreting those observations, and reflecting on their significance. Because spontaneous *play* is such a powerful window on all aspects of children’s development, well-prepared candidates create opportunities to observe children in playful situations as well as in more formal learning contexts.

Although assessment can be a positive tool for early childhood professionals, it has also been used in inappropriate and harmful ways. Well-prepared candidates understand and practice **responsible assessment**. Candidates understand that responsible assessment is ethically grounded and guided by sound professional standards. It is collaborative and open. Responsible assessment supports children, rather than being used to exclude them or deny them services. Candidates demonstrate understanding of appropriate, responsible assessment practices for culturally and linguistically diverse children and for children with developmental delays, disabilities, or other special characteristics. Finally, candidates demonstrate knowledge of legal and ethical issues, current educational concerns and controversies, and appropriate practices in the assessment of diverse young children.

#### **Standard 4. Using Developmentally Effective Approaches to Connect with Children and Families**

Candidates prepared in early childhood degree programs understand that teaching and learning with young children is a complex enterprise, and its details vary depending on



children's ages, characteristics, and the settings within which teaching and learning occur. They understand and use positive relationships and supportive interactions as the foundation for their work with young children and families. Candidates know, understand, and use a wide array of developmentally appropriate approaches, instructional strategies, and tools to connect with children and families and positively influence each child's development and learning.

Key elements of Standard 4

- **4a:** Understanding positive relationships and supportive interactions as the foundation of their work with children
- **4b:** Knowing and understanding effective strategies and tools for early education
- **4c:** Using a broad repertoire of developmentally appropriate teaching/learning approaches
- **4d:** Reflecting on their own practice to promote positive outcomes for each child

Supporting explanation

Early childhood candidates demonstrate that they understand the theories and research that support **the importance of relationships and high-quality interactions in early education**. In their practice, they display warm, nurturing interactions with each child, communicating genuine liking for and interest in young children's activities and characteristics. Throughout the years that children spend in early childhood settings, their successful learning is dependent not just on instruction but also on personal connections with important adults. Through these connections children develop not only academic skills but also positive learning dispositions and confidence in themselves as learners. Responsive teaching creates the conditions within which very young children can explore and learn about their world. The close attachments children develop with their teachers/caregivers, the expectations and beliefs that adults have about young children's capacities, and the warmth and responsiveness of adult-child interactions are powerful influences on positive developmental and educational outcomes. How children expect to be treated and how they treat others are significantly shaped in the early childhood setting. Candidates in early childhood programs develop the capacity to build a caring community of learners in the early childhood setting.

Early childhood professionals need **a broad repertoire of effective strategies and tools** to help young children learn and develop well. Candidates must ground their curriculum in a set of core approaches to teaching that are supported by research and are closely linked to the processes of early development and learning. In a sense, those approaches *are* the curriculum for infants and toddlers, although academic content can certainly be embedded in each of them.

Well-prepared early childhood professionals make purposeful use of various learning formats based on their understanding of children as individuals and as part of a group, and on alignment with important educational and developmental goals. A flexible, research-based **repertoire of teaching/learning approaches to promote young children's development** includes: 1) Fostering oral language and communication, 2) Drawing from a continuum of teaching strategies, 3) Making the most of the environment, schedule, and routines, 4) Setting up all aspects of the indoor and outdoor environment, 5) Focusing on children's individual characteristics, needs, and interests, 6) Linking children's language and culture to the early childhood program, 7) Teaching through social interactions, 8) Creating support for play, 9) Addressing children's challenging

behaviors, 10) Supporting learning through technology, and 11) Using integrative approaches to curriculum. All of these teaching approaches are effective across the early childhood age span.

Early childhood professionals make decisions about their practice based on expertise. They make professional judgments through each day based on knowledge of child development and learning, individual children, and the social and cultural contexts in which children live. From this knowledge base, effective teachers design activities, routines, interactions and curriculum for specific children and groups of children. They consider both what to teach and how to teach, developing the habit of **reflective, responsive and intentional practice** to promote positive outcomes for each child.

### **Standard 5. Using Content Knowledge to Build Meaningful Curriculum**

Candidates prepared in early childhood degree programs use their knowledge of academic disciplines to design, implement, and evaluate experiences that promote positive development and learning for each and every young child. Candidates understand the importance of developmental domains and academic (or content) disciplines in an early childhood curriculum. They know the essential concepts, inquiry tools, and structure of content areas, including academic subjects, and can identify resources to deepen their understanding. Candidates use their own knowledge and other resources to design, implement, and evaluate meaningful, challenging curricula that promote comprehensive developmental and learning outcomes for every young child.

Key elements of Standard 5

- **5a:** Understanding content knowledge and resources in academic disciplines
- **5b:** Knowing and using the central concepts, inquiry tools, and structures of content areas or academic disciplines
- **5c:** Using their own knowledge, appropriate early learning standards, and other resources to design, implement, and evaluate meaningful, challenging curricula for each child.

Supporting explanation

Strong, effective early childhood curricula do not come out of a box or a teacher-proof manual. Early childhood professionals have an especially challenging task in developing effective curricula. As suggested in Standard 1, well-prepared candidates ground their practice in a thorough, research-based understanding of young children's development and learning processes. In developing curriculum, they recognize that every child constructs knowledge in personally and culturally familiar ways. In addition, in order to make curriculum powerful and accessible to all, well-prepared candidates develop curriculum that is free of biases related to ethnicity, religion, gender, or ability status—and, in fact, the curriculum actively counters such biases.

The teacher of children from birth through age 8 must be well versed in **the essential content knowledge and resources in many academic disciplines**. Because children are encountering those content areas for the first time, early childhood professionals set the foundations for later understanding and success. Going beyond conveying isolated facts, well-prepared early childhood candidates possess the kind of content knowledge that focuses on the “big ideas,” methods of investigation and expression, and organization of the major academic disciplines. Thus, the early childhood professional knows not only *what* is important in each content area but also *why* it is important—how it



links with earlier and later understandings both within and across areas.

Teachers of young children demonstrate the understanding of **central concepts, inquiry tools, and structure of content areas** needed to provide appropriate environments that support learning in each content area for all children, beginning in infancy (through foundational developmental experiences) and extending through the primary grades. Candidates demonstrate basic knowledge of the research base underlying each content area and of the core concepts and standards of professional organizations in each content area. They rely on sound resources for that knowledge. Finally, candidates demonstrate that they can analyze and critique early childhood curriculum experiences in terms of the relationship of the experiences to the research base and to professional standards.

Well-prepared candidates choose their approaches to the task depending on the ages and developmental levels of the children they teach. They use their own **knowledge, appropriate early learning standards, and other resources to design, implement, and evaluate meaningful, challenging curriculum for each child**. With the youngest children, early childhood candidates emphasize the key experiences that will support later academic skills and understandings—with reliance on the core approaches and strategies described in sub-standard 4b and with emphasis on oral language and the development of children’s background knowledge. Working with somewhat older or more skilled children, candidates also identify those aspects of each subject area that are critical to children’s later academic competence. With all children, early childhood professionals support later success by modeling engagement in challenging subject matter and by building children’s faith in themselves as young learners—young mathematicians, scientists, artists, readers, writers, historians, economists, and geographers (although children may not think of themselves in such categories). Designing, implementing, and evaluating meaningful, challenging curriculum requires alignment with appropriate early learning standards and knowledgeable use of the discipline’s resources to focus on key experiences for each age group and each individual child.

### **Standard 6. Becoming a Professional**

Candidates prepared in early childhood degree programs identify and conduct themselves as members of the early childhood profession. They know and use ethical guidelines and other professional standards related to early childhood practice. They are continuous, collaborative learners who demonstrate knowledgeable, reflective, and critical perspectives on their work, making informed decisions that integrate knowledge from a variety of sources. They are informed advocates for sound educational practices and policies.

Key elements of Standard 6

- **6a:** Identifying and involving oneself with the early childhood field
- **6b:** Knowing about and upholding ethical standards and other professional guidelines
- **6c:** Engaging in continuous, collaborative learning to inform practice
- **6d:** Integrating knowledgeable, reflective, and critical perspectives on early education
- **6e:** Engaging in informed advocacy for children and the profession

The early childhood field has a distinctive history, values, knowledge base, and mission. Early childhood professionals, including beginning teachers, have a strong **identification and involvement with the early childhood field** to better serve young children and their families. Well-prepared candidates understand the nature of a profession. They know about the many connections between the early childhood field and other related disciplines and professions with which they may collaborate while serving diverse young children and families. Candidates are also aware of the broader contexts and challenges within which early childhood professionals work. They consider current issues and trends that might affect their work in the future.

Because young children are at such a critical point in their development and learning, and because they are vulnerable and cannot articulate their own rights and needs, early childhood professionals have compelling responsibilities to **know about and uphold ethical guidelines and other professionals**. Well-prepared candidates are very familiar with the NAEYC's Code of Ethical Conduct and are guided by its ideals and principles. This means honoring their responsibilities to uphold high standards of confidentiality, sensitivity, and respect for children, families, and colleagues. Candidates know how to use the Code to analyze and resolve professional ethical dilemmas and are able to give defensible justifications for their resolutions of those dilemmas. Well-prepared candidates also know and obey relevant laws, such as those pertaining to child abuse, the rights of children with disabilities, and school attendance. Finally, candidates are familiar with relevant professional guidelines, such as national, state, or local standards for content and child outcomes; position statements about, for example, early learning standards, linguistic and cultural diversity, early childhood mathematics, technology in early childhood, prevention of child abuse, child care licensing requirements, and other professional standards affecting early childhood practice.

**Continuous, collaborative learning to inform practice** is a hallmark of a professional in any field. An attitude of inquiry is evident in well-prepared candidates' writing, discussion, and actions. Whether engaging in classroom-based research, investigating ways to improve their own practices, participating in conferences, or finding resources in libraries and on Internet sites, candidates demonstrate self-motivated, purposeful learning that directly influences the quality of their work with young children.

Candidates—and professional preparation programs—view graduation or licensure not as the final demonstration of competence but as one milestone among many, including professional development experiences before and beyond successful degree completion. Well-prepared candidates' practice is influenced by **knowledgeable, reflective, and critical perspectives**. As professionals, early childhood candidates' decisions and advocacy efforts are grounded in multiple sources of knowledge and multiple perspectives. Even routine decisions about what materials to use for an activity, whether to intervene in a dispute between two children, how to organize nap time, what to say about curriculum in a newsletter, or what to tell families about new video games are informed by a professional context, research-based knowledge, and values. In their work with young children, candidates show that they make and justify decisions on the basis of their *knowledge* of the central issues, professional values and standards, and research findings in their field. They also show evidence of *reflective approaches* to their work, analyzing their own practices in a broader context, and using reflections to modify and improve their work with young children. Finally, well-prepared candidates display a *critical*

*stance*, examining their own work, sources of professional knowledge, and the early childhood field with a questioning attitude. Their work demonstrates that they do not just accept a simplistic source of truth; instead, they recognize that while early childhood educators share the same core professional values, they do not agree on all of the field's central questions.

Finally, early childhood candidates demonstrate that they can engage in **informed advocacy for children and families and the profession**. They know about the central policy issues in the field, including professional compensation, financing of the early education system, and standards setting and assessment. They are aware of and engaged in examining ethical issues and societal concerns about program quality and provision of early childhood services and the implications of those issues for advocacy and policy change. Candidates have a basic understanding of how public policies are developed, and they demonstrate essential advocacy skills, including verbal and written communication and collaboration with others around common issues.

### **1) SELF-ASSESSMENT AND SELF-ADVOCACY**

Associate degree candidates are often at a key decision point in their professional lives, entering or reentering higher education after extended work experiences or making decisions about further education beyond the associate degree. Therefore, skills in assessing one's own goals, strengths, and needs are critical, as is learning how to advocate for one's own professional needs.

Evidence of growth: Candidates' growth in these skills may be seen in assessments of changes over time and in the actual professional decisions made by candidates as they move through the program and beyond.

#### **Indicators of strength:**

- Candidates assess their own goals, strengths, and needs.
- Candidates know how to advocate for their own professional needs.

### **2) MASTERING AND APPLYING FOUNDATIONAL CONCEPTS FROM GENERAL EDUCATION**

General education has value for its own sake—as part of the background of an educated person—and for the value added to practitioners' ability to implement a conceptually rich curriculum. Both in immediate employment as an early childhood professional and in preparing for further baccalaureate study, associate degree graduates are enriched by understanding foundational concepts from areas including science, mathematics, literature, and the behavioral and social sciences.

Evidence of growth: Candidates' acquisition of these skills may be seen, for example, in their successful mastery of general education objectives, in their written and oral rationales for activities, and in ratings of the conceptual accuracy and richness of their curriculum plans.

**Indicators of strength:**

- Candidates understand foundational concepts from areas such as science, mathematics, literature, and the behavioral and social sciences.
- Candidates can apply these concepts in their work as early childhood professionals.

**3) WRITTEN AND VERBAL COMMUNICATIONS SKILLS**

Well-prepared associate degree graduates have strong skills in written and verbal communication. These skills allow them to provide positive language and literacy experiences for children, and they also support professional communications with families and colleagues. Candidates going on to baccalaureate study need skills sufficient to ensure success in upper-division academic work. In addition, technological literacy is an essential component of this set of skills.

Evidence of growth: Candidates' mastery of these skills may be seen, for example, in successful completion of relevant courses, performance on communication and technological aspects of assignments, and competent use of communication skills in field experiences.

**Indicators of strength:**

- Candidates have effective skills in written and verbal communication.
- Candidates are technologically literate.

**4) MAKING CONNECTIONS BETWEEN PRIOR KNOWLEDGE/EXPERIENCE AND NEW LEARNING**

All professionals need these skills, but they are especially important in supporting the learning of associate degree candidates who have worked for years in early care and education. Well prepared associate degree graduates are able to respect and draw upon their past or current work experience and also reflect critically upon it, enriching and altering prior knowledge with new insights. These skills will, over time, enable graduates to respond to the evolving mandates and priorities of the early childhood field.

Evidence of growth: Progress in making productive connections may be seen in candidates' growing ability to articulate relevant theory and research that either affirms or calls into question their experience—often seen in journals and portfolios, but also in interviews and presentations.

**Indicators of strength:**

- Candidates respect and draw upon their past or current work experience.
- Candidates are able to reflect critically upon their experience.

**5) IDENTIFYING AND USING PROFESSIONAL RESOURCES**

Even the best associate program cannot provide in-depth knowledge and skills in all areas. Therefore, well-prepared graduates should know how to identify and use credible professional resources from multiple sources, allowing them to better serve children and families with a wide range of cultures, languages, needs, and abilities.

Evidence of growth: Candidates' growth in this area may be evidenced, for example, by portfolio artifacts, resources used in lesson plans or other field assignments, or in class presentations.

**Indicators of strength:**

- Candidates know how to identify and use credible professional resources from multiple sources.
- Candidates use these resources to better serve children and families with a wide range of cultures, languages, needs, and abilities.

## **CONCEPTUAL FRAMEWORK**

The mission of the TRCC ECE program is to offer a well rounded and rewarding post-secondary education which emphasizes: Teaching and Learning, Integrity and Service, Community and Diversity with an emphasis on critical thinking, and effective communication. The primary goal of the program is to prepare passionate educational leaders, providers and teachers to serve as community resources for people and institutions within the region. Successful candidates will demonstrate the disposition, temperament and high academic standards to create positive environments and relationships in diverse settings with all children ages 0-8 years.

The ECE program incorporates instruction that stresses connection to real life expectations in the field based on theoretical understanding of all aspects of developmentally appropriate practices. The ECE program promotes professionalism and supports the development of leadership through a program that stresses academic rigor through development of oral, written, expressive and receptive competencies. Candidates are encouraged to take responsibility for oneself, one's peers, one's colleagues and one's community.

The ECE program is a community based educational program that prepares, supports and embraces individuals in their pursuit of an early childhood education working with children ages 0-8. Trust and confidence in academic programs are built through an academic plan of study that involves observation and involvement in local schools and child care facilities from the onset of the ECE plan of study. TRCC faculty believes that all candidates are able to learn; although not everyone is ready to teach. The ECE program provides access for all regardless of age, race, ethnicity, culture, gender, orientation, or disability. It is the TRCC ECE program's intent to graduate candidates who believe that all children are capable of learning.

Within the field of early childhood the following topics / research has most influenced how we teach 1) NAEYC standards and skills, 2) Intentional Teaching, 3) DAP / DCAP, and 4) Learning theories including but not limited to the socio-constructivist theory and multiple intelligences. The conceptual framework in conjunction with NAEYC standards and supportive skills has been designed to allow candidates the opportunity to apply concepts as they relate to best practice in a variety of activities and assignments to develop a foundation for real life application. The entire ECE program is to create a cohesive plan of study current in National and State Competencies and standards.

**Three Rivers Community College**  
**ECE K109 Science and Math for Young Children**  
**Science Portfolio Assignment**

**Course Objectives:**

Offer child-orientated experiences in order to stimulate children's curiosity.  
Support the young child's natural desire to explore and learn.  
Discover how to make simple low-cost materials in order to teach science concepts.  
Discover strategies that aid in the development of problem-solving skills of young children.

**General Education Goals:**

Candidates will develop the skills and abilities to communicate effectively in writing.  
Candidates will develop information literacy to assess what information is needed to answer questions and to retrieve, evaluate, and use that information effectively.

**Course Outcomes:**

Candidates will understand what young children are like and what the multiple influences are on their development and learning. (NAEYC Standard 1.a. and 1.b.)  
Candidate will apply developmentally appropriate practices in math and science lessons. (NAEYC Standard 1.a., 1.b. and 5.a.)  
Candidates will analyze the importance of being a continuous and collaborative learner. (NAEYC Standard 6.c.)

It is important that when you work with young children that you understand child development and state standards. The most common way we promote this development is through the environment and interactions with children. To become a better early care educator you should be prepared with a wide range of resources to use with young children that are age and developmentally appropriate. *Be sure to use any resources available to you, including your textbooks, on line, libraries, etc.*

For each section, as appropriate, you will need to identify materials for a variety of different aged children (infant, toddler, preschooler, kindergartener and primary school) we will be exploring in class. You may also chose to focus on a specific age group, targeting the age group you plan to work with in the future, but there should be materials identified as appropriate for a variety of different skills and developmental abilities relevant to that age / grade.

**I. Overview**

This should include your name, intended purpose of this resource, age group(s) focused on and why, as well as the basic premise you have for how you will use this information in the future. You need to develop a summary of the resources included in the assignment. I want to know what was the direction you used? challenges? supports? and overall opinion of the process you went through completing this assignment.

## **II. Curriculum, frameworks and standards**

In this section you will need to include **at least five sources** of information that would allow you to identify age, development and culturally appropriate science curriculum for children. For each entry you will list the source and include a narrative.

The entry will need to include all the necessary bibliographical information. Must use either APA or MLA format.

You then write a brief narrative which includes:

(a) where you found this resource, (b) the reason you chose this source, (c) age group appropriate for and why, (d) identification of the specific science skills the source includes and (e) possible ways you would use this source.

## **III. Science curriculum resources**

In this section you will need to include **at least ten sources** of information that would allow you to plan an appropriate science lesson. For each entry you will list the source and include a narrative. These resources can be places, websites, textbooks, people, etc. But they must be educational in nature and include a wide variety of different resources.

The entry will need to include all the necessary bibliographical information. Must use either APA or MLA format.

You will need to write a brief narrative that identifies:

(a) the reason you picked this book / site / etc., (b) a quick overview of the material(s) and, (c) age group appropriate for and (d) identifies the science topic being promoted.

*You cannot duplicate authors or different books in a series. Your textbook will help you here. Again, be creative and remember the key is quality.*

## **IV. Science articles**

In this section you will need to include **at least ten articles** about science, goals of this topic and / or science related information. You need to include a variety of articles, please be sure to consider the many ways articles are useful as they can be used to support learning (give to students), inform parents, develop new curriculum ideas, research for support with classroom techniques, etc.

For each entry you will include the article and a narrative. You will include the actual article or direct link so I can access it online in your paper. For each you will need to show where you collected the material from, providing all the necessary bibliographical information. If printing it from the internet then be sure the link is on the page, if copying from a book or text resource, write the citation on the first page. These resources can be places, websites, textbooks, people, etc. But they must be educational in nature and include a wide variety of different resources.



The entry will need to include all the necessary bibliographical information. Must use either APA or MLA format.

You will need to write a brief narrative that identifies:

(a) the reason you chose this article, (b) target audience (children, parent, colleague, administrators or for planning), (c) possible ways you would use this article, and (d) identification of the specific science skills, if appropriate.

*You cannot include the articles you have been given in class.*

## **V. Activities**

In this section you will need to include **at least five activities** that show you can identify some age, development and culturally appropriate science curriculum ideas for children. For each entry you will list the source and include a narrative. These resources can be places, websites, textbooks, people, etc. But they must be educational in nature and include a wide variety of different resources.

You will then need to write a brief narrative that identifies:

(a) the source of the curriculum idea or activity, (b) the standard, framework, goal of the activity specific to science, (c) age group it would be appropriate for, (d) a quick overview of the activity (if appropriate, a small part of the activity), (e) areas of the classroom where materials, play equipment, etc. will be added, and (f) the reason you included the activity.

*You cannot duplicate resources.*

*Be creative, you must include the many different types of science activities available (activity, songs, physical activities, experiments, gross motor game, etc).*



**ECE K109 Science and Math  
Science Portfolio Grading Rubric**

	<b>Exceeds Expectations (5)</b>	<b>Meets Expectations (4)</b>	<b>Needs Improvement (3)</b>	<b>Insufficient (2)</b>
<b>Overview and basic assignment</b>	Well organized, submitted on time and was well written without any grammatical errors. Neatly typed, interesting presentation. The overview was complete. Utilized correct MLA citation format. Included electronic links that could be accessed easily.	Assignment was turned in on time, had some minor grammatical errors and was presented in a readable style. Some parts were formatted differently and were missing some information.	Assignment was incomplete and had some grammatical errors. Missing critical information and some relevant details. Format was difficult to follow.	Assignment was incomplete, had numerous grammatical errors and wasn't formatted correctly.
<b>Curriculum, Frameworks and Standards</b>	Included all relevant information about the source in the citation. Identified correctly an appropriate age group as well as the science skill being promoted. Choices were complete and included a wide range of sources. Went beyond resources included in the textbook. Utilized a variety of different sources for finding the standards, frameworks and standards. Choices showed an awareness of meeting the needs of a diverse learning population.	Cited reference information, with minor errors. Most selections identified appropriate science components as it pertains to the selected age group. Selections were taken from a variety of sources and most were high quality.	Citations were incomplete. Only included resources that were included through in class and course materials. Missing relevant information. Sources weren't very diverse.	Citations were missing and / or incomplete. Not enough information provided to show awareness of standards.
<b>Science Curriculum</b>	Included all relevant information about the resource in the citation. Identified correctly the appropriate age group(s) and range of science skills that the resource could be used for. Choices were of high quality as displayed through the variety of standards identified, specific to state and accreditation requirements. Choices showed an awareness of curriculum development designed for a diverse learning population.	Cited reference information, with minor errors. Descriptions include details that identify the reasons why the resource was chosen and appropriate science components as it pertains to the selected age group. Selections were taken from a variety of sources and most were high quality.	Citations were incomplete. Descriptions weren't clear or didn't identify the science component for curriculum development. Goals weren't specific to the age group(s) identified. Didn't include enough information.	Citations were missing and / or incomplete. Not enough information provided to show awareness of curriculum.

	<b>Exceeds Expectations (5)</b>	<b>Meets Expectations (4)</b>	<b>Needs Improvement (3)</b>	<b>Insufficient (2)</b>
<b>Articles</b>	Included all relevant information about the article in the citation. Choices were of high quality as displayed through the variety of topics identified within science development. Included articles for a wide variety of purposes, including children, as a practitioner and for use with parents. Utilized a variety of different sources for finding the articles.	Formatting of the citation was appropriate. Choices included a variety of science topics and could be used with a variety of populations. Utilized a variety of different sources for finding the articles.	Citations were incomplete. Articles were outdated, inappropriate or showed a lack of understanding of developmentally appropriate practices. Choices included a few different science topics.	Provided a limited number of articles, many were missing citations. Some were not science based.
<b>Science Activities</b>	Included all relevant information about the source of the activity in the citation. Clearly identified specific and diverse science goals for children incorporating the wide range of developmental needs of children. Choices were creative, innovative and of high quality as displayed through the variety of developmental domains covered through the curriculum materials. Utilized a variety of different sources for finding the resources.	Cited reference information, with minor errors. Noted and applied some appropriate science components as it pertains to the selected age group. Selections were taken from a variety of sources and most were high quality. The range of developmental skills targeted was appropriate.	Citations were incomplete. Choices didn't reflect the understanding of the different methods of science development in the curriculum.	Didn't include enough variety or information to meet the curriculum requirement.

Grading: As this assignment is out of a possible 25 points to figure your total grade (out of 100 points as noted in the syllabus) you can multiply your points by 4 so it equates to the total points out of 100.

**Three Rivers Community College**  
**ECE K109 Science and Math for Young Children**  
**Math Portfolio Assignment**

**Course Objectives:**

Offer child-orientated experiences in order to stimulate children's curiosity.  
Support the young child's natural desire to explore and learn.  
Discover how to make simple low-cost materials in order to teach science concepts.  
Discover strategies that aid in the development of problem-solving skills of young children.

**General Education Goals:**

Candidates will develop the skills and abilities to communicate effectively in writing.  
Candidates will develop information literacy to assess what information is needed to answer questions and to retrieve, evaluate, and use that information effectively.

**Course Outcomes:**

Candidates will understand what young children are like and what the multiple influences are on their development and learning. (NAEYC Standard 1.a. and 1.b.)  
Candidate will apply developmentally appropriate practices in math and science lessons. (NAEYC Standard 1.a., 1.b. and 5.a.)  
Candidates will analyze the importance of being a continuous and collaborative learner. (NAEYC Standard 6.c.)

It is important that when you work with young children that you understand child development and state standards. The most common way we promote this development is through the environment and interactions with children. To become a better early care educator you should be prepared with a wide range of resources to use with young children that are age and developmentally appropriate. *Be sure to use any resources available to you, including your textbooks, on line, libraries, etc.*

For each section, as appropriate, you will need to identify materials for a variety of different aged children (infant, toddler, preschooler, kindergartener and primary school) we will be exploring in class. You may also chose to focus on a specific age group, targeting the age group you plan to work with in the future, but there should be materials identified as appropriate for a variety of different skills and developmental abilities relevant to that age / grade.

**I. Overview**

This should include your name, intended purpose of this resource, age group(s) focused on and why, as well as the basic premise you have for how you will use this information in the future. You need to develop a summary of the resources included in the assignment. I want to know what was the direction you used? challenges? supports? and overall opinion of the process you went through completing this assignment.

## **II. Curriculum, frameworks and standards**

In this section you will need to include **at least five sources** of information that would allow you to identify age, development and culturally appropriate mathematics curriculum for children. For each entry you will list the source and include a narrative.

The entry will need to include all the necessary bibliographical information. Must use either APA or MLA format.

You then write a brief narrative which includes:

(a) where you found this resource, (b) the reason you chose this source, (c) age group appropriate for and why, (d) identification of the specific mathematics skills the source includes and (e) possible ways you would use this source.

## **III. Math activity resources**

In this section you will need to include **at least ten sources** of information that would allow you to plan an appropriate math lesson. For each entry you will list the source and include a narrative. These resources can be places, websites, textbooks, people, etc. But they must be educational in nature and include a wide variety of different resources.

The entry will need to include all the necessary bibliographical information. Must use either APA or MLA format.

You will need to write a brief narrative that identifies:

(a) the reason you picked this book / site / etc., (b) a quick overview of the material(s) and, (c) age group appropriate for and (d) identifies the math topic being promoted.

*You cannot duplicate authors or different books in a series. Your textbook will help you here. Again, be creative and remember the key is quality.*

## **IV. Math articles**

In this section you will need to include **at least ten articles** about math, goals of this topic and / or math related information. You need to include a variety of articles, please be sure to consider the many ways articles are useful as they can be used to support learning (give to students), inform parents, develop new curriculum ideas, research for support with classroom techniques, etc.

For each entry you will include the article and a narrative. You will include the actual article or direct link so I can access it online in your paper. For each you will need to show where you collected the material from, providing all the necessary bibliographical information. If printing it from the internet then be sure the link is on the page, if copying from a book or text resource, write the citation on the first page. These resources can be places, websites, textbooks, people, etc. But they must be educational in nature and include a wide variety of different resources.

The entry will need to include all the necessary bibliographical information. Must use either APA or MLA format.

You will need to write a brief narrative that identifies:

(a) the reason you chose this article, (b) target audience (children, parent, colleague, administrators or for planning), (c) possible ways you would use this article, and (d) identification of the specific math skills, if appropriate.

*You cannot include the articles you have been given in class.*

## **V. Activities**

In this section you will need to include **at least five activities** that show you can identify some age, development and culturally appropriate mathematics curriculum ideas for children. For each entry you will list the source and include a narrative. These resources can be places, websites, textbooks, people, etc. But they must be educational in nature and include a wide variety of different resources.

You will then need to write a brief narrative that identifies:

(a) the source of the curriculum idea or activity, (b) the standard, framework, goal of the activity specific to mathematics, (c) age group it would be appropriate for, (d) a quick overview of the activity (if appropriate, a small part of the activity), (e) areas of the classroom where materials, play equipment, etc. will be added, and (f) the reason you included the activity.

*You cannot duplicate resources.*

*Be creative, you must include the many different types of math activities available (activity, songs, physical activities, experiments, gross motor game, etc).*





**ECE K109 Science and Math  
Mathematics Portfolio Grading Rubric**

	<b>Exceeds Expectations (5)</b>	<b>Meets Expectations (4)</b>	<b>Needs Improvement (3)</b>	<b>Insufficient (2)</b>
<b>Overview and basic assignment</b>	Well organized, submitted on time and was well written without any grammatical errors. Neatly typed, interesting presentation. The overview was complete. Utilized correct MLA citation format. Included electronic links that could be accessed easily.	Assignment was turned in on time, had some minor grammatical errors and was presented in a readable style. Some parts were formatted differently and were missing some information.	Assignment was incomplete and had some grammatical errors. Missing critical information and some relevant details. Format was difficult to follow.	Assignment was incomplete, had numerous grammatical errors and wasn't formatted correctly.
<b>Curriculum, Frameworks and Standards</b>	Included all relevant information about the source in the citation. Identified correctly an appropriate age group as well as the math skill being promoted. Choices were complete and included a wide range of sources. Went beyond resources included in the textbook. Utilized a variety of different sources for finding the standards, frameworks and standards. Choices showed an awareness of meeting the needs of a diverse learning population.	Cited reference information, with minor errors. Most selections identified appropriate math components as it pertains to the selected age group. Selections were taken from a variety of sources and most were high quality.	Citations were incomplete. Only included resources that were included through in class and course materials. Missing relevant information. Sources weren't very diverse.	Citations were missing and / or incomplete. Not enough information provided to show awareness of math standards.
<b>Math Curriculum</b>	Included all relevant information about the resource in the citation. Identified correctly the appropriate age group(s) and range of math skills that the resource could be used for. Choices were of high quality as displayed through the variety of standards identified, specific to state and accreditation requirements. Choices showed an awareness of curriculum development designed for a diverse learning population.	Cited reference information, with minor errors. Descriptions include details that identify the reasons why the resource was chosen and appropriate math components as it pertains to the selected age group. Selections were taken from a variety of sources and most were high quality.	Citations were incomplete. Descriptions weren't clear or didn't identify the math component for curriculum development. Goals weren't specific to the age group(s) identified. Didn't include enough information.	Citations were missing and / or incomplete. Not enough information provided to show awareness of curriculum.

	<b>Exceeds Expectations (5)</b>	<b>Meets Expectations (4)</b>	<b>Needs Improvement (3)</b>	<b>Insufficient (2)</b>
<b>Articles</b>	Included all relevant information about the article in the citation. Choices were of high quality as displayed through the variety of topics identified within math development. Included articles for a wide variety of purposes, including children, as a practitioner and for use with parents. Utilized a variety of different sources for finding the articles.	Formatting of the citation was appropriate. Choices included a variety of science topics and could be used with a variety of populations. Utilized a variety of different sources for finding the articles.	Citations were incomplete. Articles were outdated, inappropriate or showed a lack of understanding of developmentally appropriate practices. Choices included a few different math topics.	Provided a limited number of articles, many were missing citations. Some were not math based.
<b>Math Activities</b>	Included all relevant information about the source of the activity in the citation. Clearly identified specific and diverse science goals for children incorporating the wide range of developmental needs of children. Choices were creative, innovative and of high quality as displayed through the variety of developmental domains covered through the curriculum materials. Utilized a variety of different sources for finding the resources.	Cited reference information, with minor errors. Noted and applied some appropriate math components as it pertains to the selected age group. Selections were taken from a variety of sources and most were high quality. The range of developmental skills targeted was appropriate.	Citations were incomplete. Choices didn't reflect the understanding of the different methods of math development in the curriculum.	Didn't include enough variety or information to meet the curriculum requirement.

Grading: As this assignment is out of a possible 25 points to figure your total grade (out of 100 points as noted in the syllabus) you can multiply your points by 4 so it equates to the total points out of 100.

**Three Rivers Community College**  
**ECE K109 Science and Math for Young Children**  
**Article Review Questions**

Throughout this course you will be given many different resources to review as a way to enhance the materials covered in class. You are responsible to read and familiarize yourself with these materials. To help you with this process I have developed some review questions to go along with some of the articles. These questions will need to be handed in and will count as part of your grade (participation). They will **not be accepted late** as they will be used to promote participation the day they are due.

**Section One: Chapters 1 – 4, 15, 20, 22, 31 and 39 – 41**

Elkind, David. The Power of Play: Learning what Comes Naturally. Da Capo Books, 2007. Pages 119 - 144.

1. What was the main message the author was trying to make?
2. How important is it to promote learning through play?
3. What, if anything, did you disagree with? Why?

Freeman, Barbara. How to create graphs in the classroom. eHow online article, [http://www.ehow.com/how\\_8349136\\_create-graphs-classroom.html](http://www.ehow.com/how_8349136_create-graphs-classroom.html)

1. What was the main idea of the article?
2. What were some of the interesting facts from the article?
3. How would you use the information covered in the article?

**Section Two: Chapters 5 – 7, 12 – 14, 16, 21, 26 and 33 - 37**

Chalufour, Ingrid & Karen Worth. Building Structures with Young Children. *Young Scientist Series*. NAEYC. Pages 73 - 79.

1. What parts of this article supported what we have learned about educating young children?
2. What information was new?
3. How would you apply the information from this article in the classroom?

**Section Three: Chapters 8 – 11, 17 – 19, 23 – 25, 27 – 30 and 32**

Cutler, K. M., Gilkerson, D., Parrott, S. & Bowne, M. T. Developing Math Games Based on Children's Books. *Teaching Young Children magazine*. Vol 2, Number 2.

1. What is play and how is it important?
2. How would you defend playing games during math time?
3. What part of the article do you agree with the most, and why?