

STEM—Growing ECE Educators Who Can Support Children’s Learning in Science, Technology, Engineering and Math

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Learning & Knowledge Center (ECLKC)**

**Head Start Information & Communication Center
(HSICC)**

#1 Poll

Webinar Focus: What's in it for Me?

Take-Aways—

- STEM messages – what is STEM and why STEM skills are so important in ECE now and in our future;
- current research about quality ECE science and math experiences in preschool classrooms;
- how STEM domains promote children's school readiness outcomes;
- effective ways to use the natural world to support children's learning and development in Science, Math and other domains;
- key Science process skills of observing, predicting, investigating, classifying, and communicating, which are the basis of critical thinking and learning for children;
- web-accessible resources for staff development that scaffold EC educators to build Science and Math competencies (absolutely over 100 free resources); and
- strategies that teaching staff can use to promote parent/family engagement that is critical to improving the home environment's learning supports.

How does the natural world connect with ECE *Hot Topics*?

Current Research and Trends

SR—

STEM—

NBLD—

Take a minute to think about these acronyms and what they mean.
How would you define these terms or concepts?

#2 Poll

**How does the outdoor environment
connect with these ECE *Hot Topics*?
Current Research and Trends**

SR—School Readiness

**STEM—Science, Technology, Engineering &
Mathematics**

NBLD—Nature Based Learning & Development

#3 Poll

1/3 of Americans would rather clean a toilet than do a math problem—what promise does that hold for us?

Is it possible that STEM is central to successful school readiness outcomes for young children?

Let's closely look at the topics included in STEM, and how outdoor environments might relate to children's success in school and In life.



What do we know about STEM and our Future?

By 2030 when today's preschoolers will be looking for work—how many STEM jobs will be available?

What can EC Educators do to more effectively address STEM concepts?



What Does the Research Say?



Children Learn Using All the Science Process Skills



What's Keeping Teachers from Quality Math and Science in EC Environments?

- **Lack of comfort and uncertainty**
- **Lack of time**
- **Lack of resources**

So What Can We Do About ?

Build teachers' competencies in four areas:

- **Planning and implementing learning experiences that advance the intellectual development of children;**
- **Creating learning environments that inspire children to ask questions;**
- **Becoming more aware of children's questions and responding in ways that challenge their thinking further; and**
- **Encouraging and supporting the involvement of families in their children's learning experiences.**

Old Words, New Again

- **Mathematize**—draw out and call attention to math content and processes in children’s experiences; first known use of **mathematize**—1908
- **Scientize Definition:** to treat with a scientific approach --the attempt to *scientize* reality, to name it and classify it; first Known Use of *scientize*—1890

State Early Learning Standards Are the Foundation for Designing Intentional Experiences

New Hampshire
Early Learning Guidelines

Early Learning Guidelines Task Force
Child Development Bureau
Division for Children, Youth and Families
NH Department of Health and Human Services
1-800-852-3345 x 4242 or (603) 271-4242
www.dhhs.nh.gov/DHHS.CDB

Supporting
Maine's
Infants & Toddlers:

Guidelines for
Learning &
Development

Maine Department of Health and Human Services

FAIRFAX COUNTY

Early
Learning
Guidelines

Oklahoma
EARLY LEARNING
GUIDELINES FOR
INFANTS, TODDLERS
AND TWOS
Ages 0 through 36 months

OKHHS
OKCCS

Louisiana's Early Learning
Guidelines and Program
Standards: Birth through Three

Washington State
Early Learning
and Development
Guidelines
Birth through 3rd Grade
2012

replaces 2005 Early Learning
and Development Benchmarks

North Dakota
department of
human services

Ages 3 through 5

North Dakota
Early Learning Guidelines

STATE OF ALASKA

Early Learning Guidelines

Barbara K. Jackson, PhD, Commissioner
Barbara Thompson, Health Commissioner

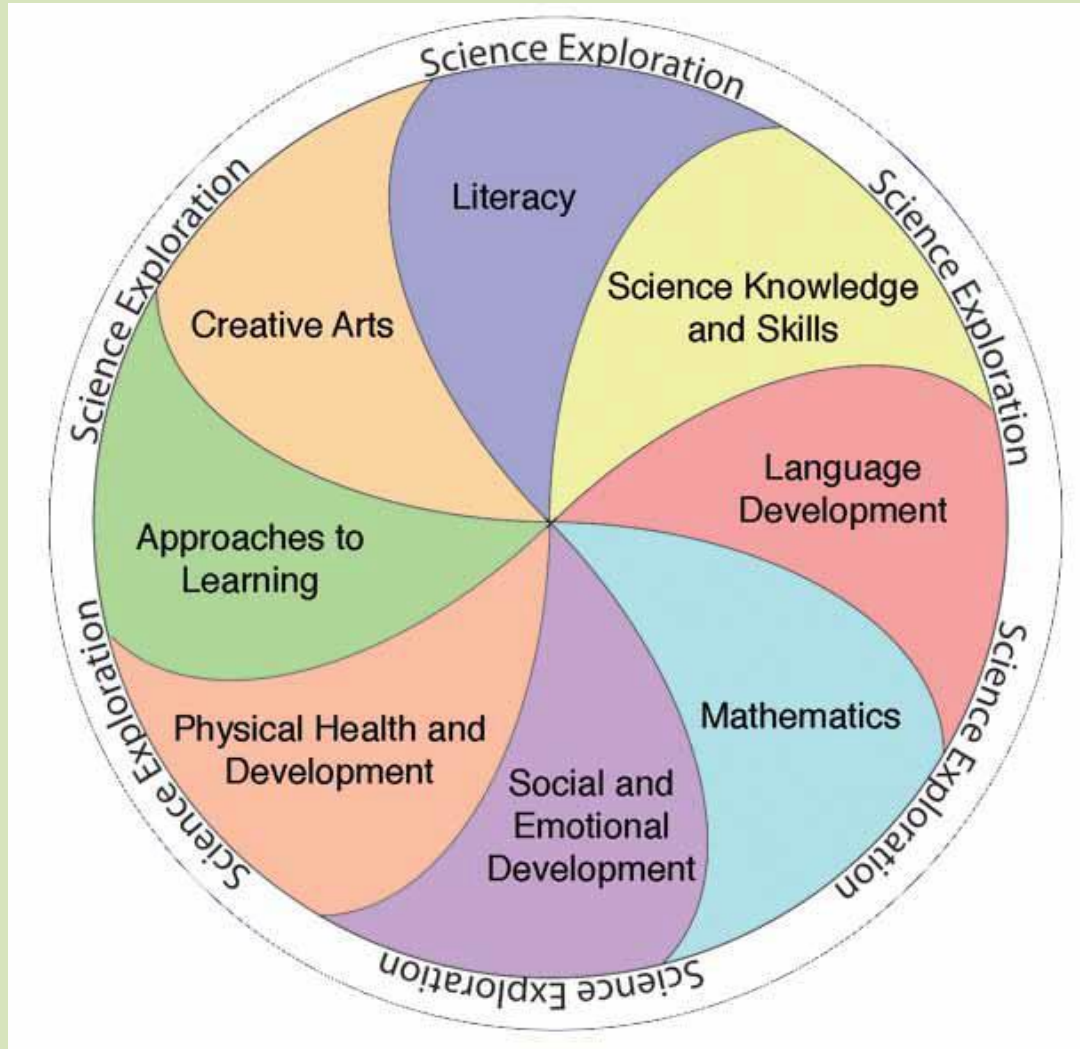
State of Alaska
Department of Health and Social Services
Department of Education and Early Development

Looking Inside STEM



Let's Begin with Science
Where's the Science?

Science-Centered Approach



Children's Time Exploring the Natural World is the Perfect Launch for STEM Experiences



Stop & Think...Scientize & Mathematize

How many learning and development opportunities do we have in the outdoor environment that intentionally support STEM and school readiness?
How many *could* we have?





Cognition &
General
Knowledge
includes Math and
Science

5 Domain elements

- ✓ number concepts & quantities
- ✓ number relationships & operations
- ✓ geometry and spatial sense
- ✓ patterns
- ✓ measurement and comparison



Do you see others?



Creates patterns

**Orders objects
by size**

**Knowledge of the
Natural World – explores
water**

**Science – Compares Objects
Gathers, sorts and classifies objects
Observe and describe natural materials**

Domain: Social & Emotional Development





Domain: Physical Dev & Health

Example – Develops motor control and balance

Example – Develops motor coordination & skill



Example – Understands movement concepts

Example – Develops strength and dexterity

Where do you see opportunities for STEM experiences in these outdoor environments?



OHS Discovering Science Series Webcasts

- **Let's do Science? Webcast #1**
- **Look What I Know. See What I Can Do! Webcast #2**



- **Science through Language and Literacy-- Webcast #3**
- **Bringing It All Together in Effective Environments Webcast--#4**



Science



Learner's Guide

Webcast #4: Bringing it ALL Together with Intentional Teaching in Effective Environments



In today's Webcast #4 we present three main ideas: (1) elements and features of environments that inspire children's interests and questions; (2) teacher and parent behaviors and dispositions to support environments for science; and (3) approaches and resources staff can use to foster professional development of science skills and scientific understanding.

Here are some questions to guide your review of the webcast and to extend your learning.

1. What can I do to create indoor and outdoor environments that inspire children to ask questions?

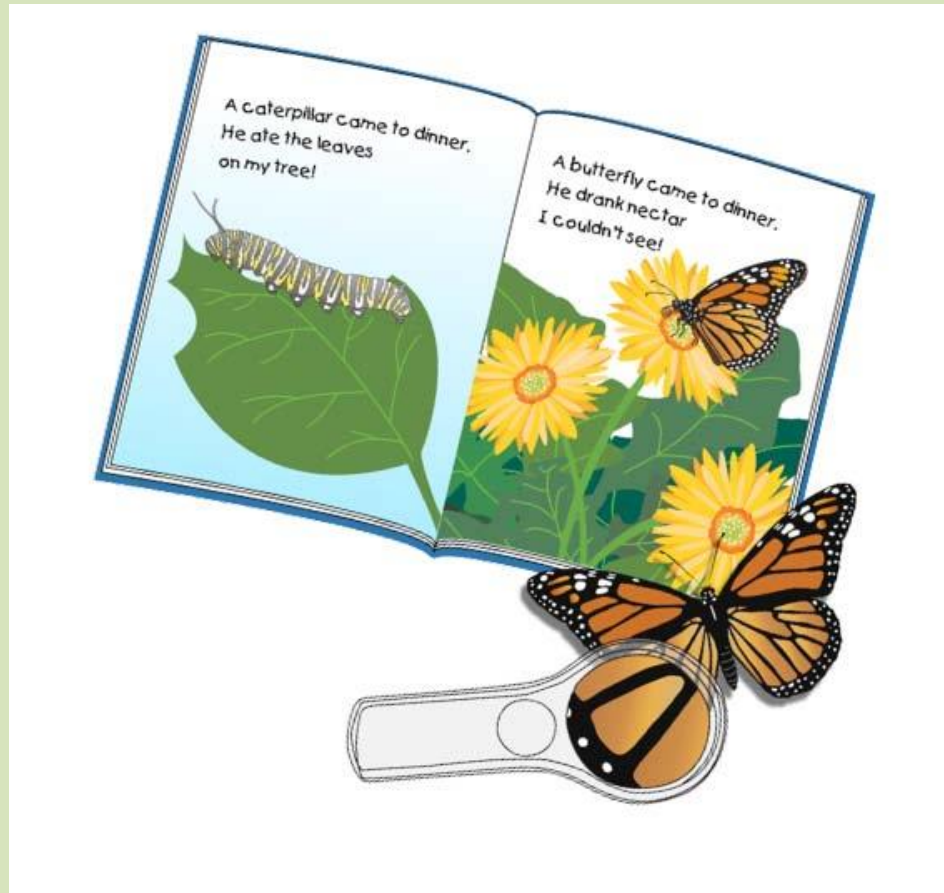
Teacher's Guide to the Discovering Science Webcast Series



The Office of Head Start Teacher's Guide to
the Discovering Science Webcast Series



Marvelous Explorations of Science through Stories (MESS)





Physical Science

Teacher's Guide



Plant Life

Teacher's Guide



Our Natural World

Teacher's Guide



Investigating Water

Teacher's Guide



Animals 2

Insects and Spiders

Teacher's Guide



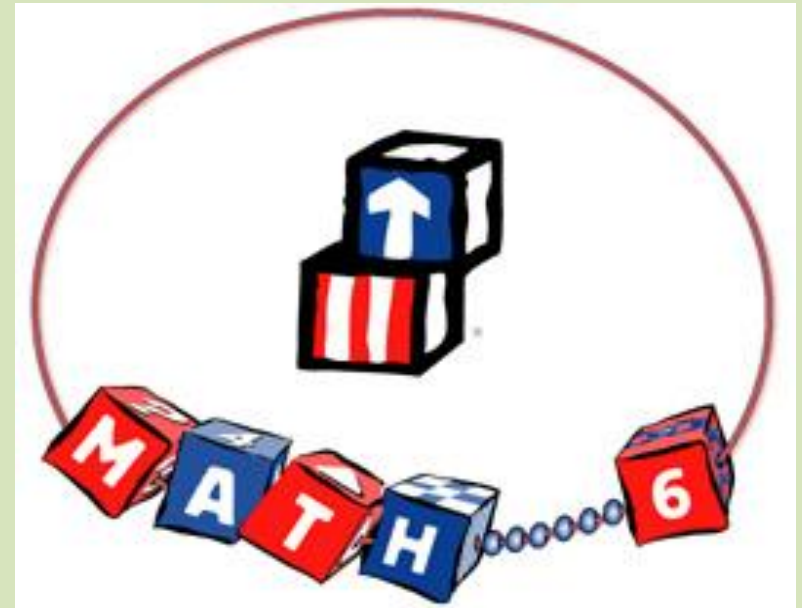
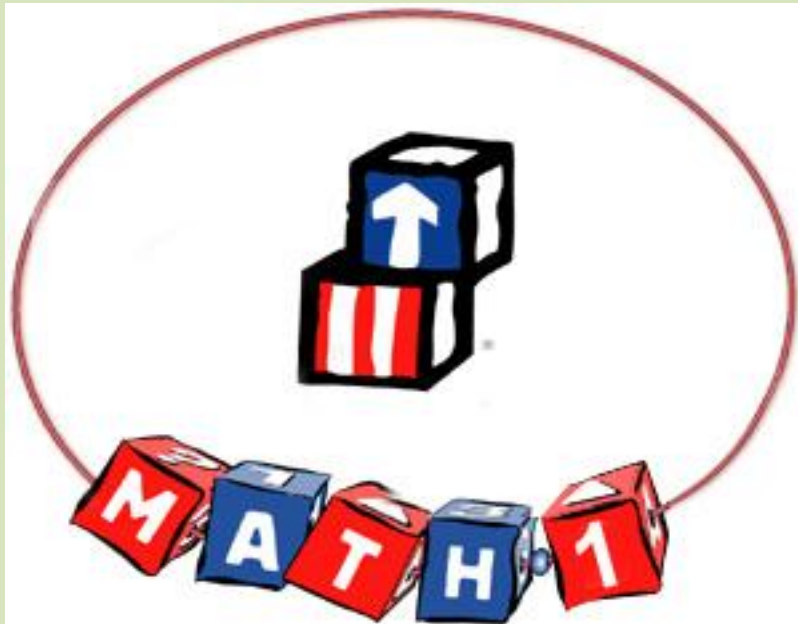
Only a Minute About the M in STEM

Research Review of Children's Early Math Competencies

ECLKC Staff Development Math Resources

Resources for Parents/Families

Math Webcasts an Related Resources



Six Math Webcasts intended for personnel who support ECE classroom teaching teams: supervisors, directors, curriculum specialists, mentor-coaches, and T/TA staff.

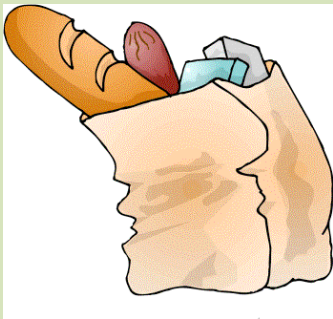
An additional set of 32-video-based lessons for self-study for teachers individually or in teams.

ECLKC Resources for Parents/Families



Help children learn math during everyday--routines. Parents can mathematize home experiences including when children are dressing, setting the table, eating a meal, or picking up toys.

More options to connect math for children can happen while at the grocery store or in the park.



Share free ECLKC Math and Science resources with parents and families to extend children's learning to the home.

#4 Poll

Early Childhood Learning & Knowledge Center

<http://eclkc.ohs.acf.hhs.gov/hslc>

Head Start | School Readiness | Policy & Regulation | Monitoring & Reports | Training & Technical Assistance | States | Español



Office of Head Start Announces Birth-to-Five Funding Opportunities

Part 1307 – Policies and Procedures for Designation Renewal of Head Start and Early Head Start Grantees

March 1, 2013
Sequestration (ACF-PI-HS-13-01)

Embargo presupuestario (ACF-PI-HS-13-01)

February 4, 2013
Head Start Launches Pilot Project to Encourage Innovation in Birth-to-5 Education

January 24, 2013
2013 HHS Poverty Guidelines

January 17, 2013
Head Start Continues Program Quality Reforms with Second Group of Competitions

November 30, 2012
E-Rate Discount Options (ACF-IM-HS-12-09)



Prev

Newest Resources



Head Start Sequestration Frequently Asked Questions (FAQs)
Use these FAQs as you plan for the funding reductions caused by the Budget Control Act of 2011, also known as sequestration.



Supporting American Indian and Alaska Native (AIAN) Early Head Start Programs
Discover how you can support infant and toddler development in AIAN programs using the school readiness framework. Watch the webinar now!



Early Math for School Readiness Kids Play Math
Check out the latest Front Porch Series Broadcast Call for an overview of how the Kids Play Math computer games support early math for school readiness.

Events and Conferences

04/28/2013 - 04/30/2013
Office of Head Start 2nd National Birth to Five Leadership Institute

For Families

Quality Teaching and Learning

Cultural and Linguistic Responsiveness

Early Head Start

Head Start Locator

Address

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State

Zip Code

Distance

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Head Start Stories

Bonificia R. Riedel
former Head Start parent and current Head Start administrator, Cheyenne, WY

[More stories](#) [Submit a story](#)

Share your *Take Aways* about STEM and the Natural World AND Stay Connected with Us



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