

STEM in Early Childhood

Sarah Erdman

STEM

- ▶ Science
- ▶ Technology
- ▶ Engineering
- ▶ Math

- ▶ STEAM
- ▶ STREAM

STEM BASICS

- ▶ Observation
- ▶ Scientific Method
 - ▶ Ask a question
 - ▶ Make a hypothesis
 - ▶ Test it out
 - ▶ What are the results?
- ▶ Engineering Design Process
 - ▶ What is your idea?
 - ▶ Make a design
 - ▶ Build it
 - ▶ Test it out
 - ▶ Make changes

NAEYC/DC Early Learning Standards- Science

▶ Infants/Toddlers

- ▶ Use senses to learn about objects
- ▶ Discover they make things happen
- ▶ Solve simple problems

▶ Preschool

- ▶ Living/nonliving
- ▶ Life cycles
- ▶ Earth/sky
- ▶ Structure/property of matter
 - ▶ Hard/soft
 - ▶ Float/Sink
- ▶ Behavior of materials
 - ▶ Liquid to solid
- ▶ Use 5 senses to explore/observe/experiment
- ▶ Use simple tools
- ▶ Collect data and document findings
- ▶ Opportunities/materials to think/question/reason
- ▶ Discuss scientific concepts in everyday conversation
- ▶ Use scientific terminology and vocabulary

NAEYC/DC Early Learning Standards- Math

- ▶ Infants/Toddlers
 - ▶ More/less/Big/Small
 - ▶ See/touch shapes, sizes, colors and patterns
 - ▶ Build number awareness
- ▶ Pre-K
 - ▶ Build understanding of numbers
 - ▶ Categorize 1-2 attributes (Shape/size/color)
 - ▶ Use math terms in conversation
 - ▶ Measurement (standard/non standard)
 - ▶ Shapes
 - ▶ Time
 - ▶ Patterns

National Science Teachers Association- ECE Position Statement

- ▶ Children can engage in scientific practice
 - ▶ Reasoning/Inquiry
 - ▶ Organize/communicate what they learn
- ▶ Adults play central role
- ▶ Need multiple/varied opportunities to engage in science
 - ▶ Indoor/Outdoor
 - ▶ Formal/Informal
 - ▶ Develops over time
 - ▶ Experiential Learning

STEM Across the Curriculum

- ▶ Child-Led
 - ▶ Take their interests/discoveries one step farther with the scientific method
- ▶ Embrace “I don’t know”
- ▶ Be thoughtful with books
- ▶ Make a mess
 - ▶ How will this work in your classroom?
- ▶ Let centers mix
- ▶ Use vocabulary

STEM JOBS



STEM Across the Curriculum

What does that even mean anyway?

General

- ▶ Collect data (graphs/pictures)
- ▶ Observation tools (ex. Magnifying glasses, rulers)
- ▶ Books
- ▶ Photos (inspiration, “real thing”)
- ▶ “Cross Pollinate”
- ▶ Deliberate language

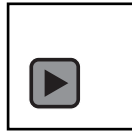
Morning Meeting

- ▶ Investigation Question
 - ▶ Open-ended
 - ▶ Opportunities to explore during the day
 - ▶ Check back in (informally or formally)

How long did it take for our letters to get to our house?

Estimate	Actual
4 days	2 days
100 days	2 days
3 hours	3 days
100 days	2 days
15 days	2 days
3 days	2 days
10 days	2 days
This afternoon	2 days
5 days	2 days
5 days	2 days
40 days	2 days
100 days	3 days

Art Center



Book



Writing Center



Dramatic Play



Cars/Animals/Dolls



Blocks



Sensory



Outdoors



Thank You!

Sarah Erdman
Cabinetofcuriositiesva.com
@cabinetofcurios
cabinetofcuriositiesva@gmail.com