

Lakeshore[®]

**S.T.E.M. and Your
Early Childhood
Classroom**

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Question

**What's Missing in
Science Class?**

Answer

Women and Minorities!

- Women make up nearly half the workforce but have only 26% of STEM jobs.*
- Blacks make up 11% of the workforce but have just 6% of STEM jobs.*
- Hispanics make up nearly 15% of the workforce but hold only 7% of STEM positions.*

What do you think might be possible causes for this imbalance???

*Statistics from the New York Times Article, "Missing from Science Class."
Published December 10, 2013

What Does S.T.E.M. Mean?

S =
T =
E =
M =

- Where did the name originate?
- Does this tell you anything?

What Does S.T.E.M. Mean?

S = Science
T = Technology
E = Engineering
M = Mathematics

- Where did the name originate?
STEM was a classification used by the U.S. government to designate fields of study that would help immigrants get work visas.
- Does this tell you anything?

Question

HOW COMFORTABLE ARE
YOU WITH
TEACHING THESE SUBJECTS...

- ~ in your early childhood classroom?
- ~ to children with differing abilities?

Early experiences... literally shape how the brain gets built

Brain Building for STEM:

Science is a way of thinking. Science involves observing and experimenting, making predictions, sharing discoveries, asking questions and wondering how things work.

Technology is a way of doing. Technology involves using tools, being inventive, identifying problems and making things work.

Engineering is a way of doing. Engineering involves solving problems, using a variety of materials, designing and creating, and building things that work.

Math is a way of measuring. Math involves sequencing (1, 2, 3, 4...), patterning (1, 2, 1, 2, 1, 2...) and exploring shapes (triangle, square, circle), volume (holds more or less) and size (bigger than, less than).

**Don't be afraid of the idea of STEM:
Aren't you already doing these things in the classroom?**

YOUR GOAL TO MAXIMIZE EACH CHILD'S POTENTIAL AT THIS CRITICAL TIME OF DEVELOPMENT

Things you can do:

- Offer a **well-planned environment** to provide children with an array of learning experiences.
- Combine the well-planned environment with **intentional, brain-building learning activities** that consider the abilities of each student. Your children will then have the best of all possible worlds.
- **Align classroom materials and instruction to your Early Childhood Learning Standards**, such as the NYS Prekindergarten Foundation for the Common Core.
- Include both scientifically accurate **nonfiction books** and **fiction books** about STEM topics in your classroom.
- **Include STEM instruction** throughout all learning areas and times of day.

More Things You Can Do

Ask “open-ended” questions that focus on “WHAT” rather than “WHY” such as:

- “What happened there?”
- “What did you try?”
- “What have you changed about what you are making?”
- “What are some of the ideas you have talked about but haven't tried yet?”
- “What have you seen other people trying?”
- “What do you notice about _____?”
- “What do you think will happen if we _____?”

The younger the child—chronologically or developmentally—the simpler and more concrete the activities need to be.

Remember the Five Senses! Children of differing abilities may especially enjoy materials that provide exciting sensory experiences.

Remember to Build S.T.E.M. Vocabulary

- Name some science vocabulary words:

- Name some math vocabulary words:

- How many of you would be able to name all the unit blocks you have in your cabinets??

Remember: It's important to use—and encourage children to use—the precise language of science!

LET'S PLAY

Think about this at every discovery center:

- 1) What standard(s) from the NYS PFCC might this material (or activity) align with?
- 2) Can you think of specific children that would benefit from—or especially like—this particular activity? Can you think of ways of making it more—or less—challenging, depending on that child's abilities? (If not, look for another, more appropriate center nearby.)
- 3) What STEM vocabulary can you teach here?
- 4) Can you name some ways of extending a child's interest in this particular topic in other learning centers in the classroom?

HAVE FUN and Remember

- **Preschool is the perfect time to cultivate positive attitudes.**
- **Very young children of differing abilities are quite capable of doing science.**
- **Preschoolers are natural scientists.**
- **Preschool is the perfect time to develop science skills.**

FOR ADDITIONAL INFORMATION:

This workshop is based on information found in the STEM Sprouts Teaching Guide, Boston Children's Museum.

<http://www.bostonchildrensmuseum.org/sites/default/files/pdfs/STEMGuide.pdf>