

**ALSC Compilation: STEAM Resources**  
**Responses to Saroj Ghoting's request, compiled May 22, 2018**

*Thank you all for your contributions. If I have missed any, or if there are any you wish to add, please contact me at [sghoting@gmail.com](mailto:sghoting@gmail.com)*

*This was my original request (April 7, 2018): I am writing this time to enlist your help regarding STEAM. I am developing an online course on STEAM in Storytime. I have not been able to find one good resource to offer as readings for background on these concepts for newborn to age five. Do any of you know of any, even could be used as a textbook for the course? My other option is to offer articles on cognitive thinking for the youngest children and then STEAM thinking for the 2 – 5 year olds. Although I always am interested in learning of age-appropriate activities, my request here is more on the background readings. The readings need to be NOT behind a firewall. In addition, if you have favorite STEAM sites for supporting newborn to five year olds, I would love to hear of those as well.*

*Many of these resources are steeped in early childhood education. While we gain valuable information from these resources, it is important to recognize, acknowledge, and retain our public library identity, which is informal, not formal, education. We also do not have the same kind of continuity that early childhood educators have. And we DO have the parents/caregivers with the children.*

*Some of these resources cover 3 – 8 year olds, so think about what activities will work best for the children you are targeting.*

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This list is by no means exhaustive. It is a reflection of the input I received from listserves.

**Repositories of STEAM Information (in addition to paid databases)**

Center for Advancement of Informal Science Education (CAISE) [www.informalscience.org](http://www.informalscience.org)

National Science Foundation-funded [www.howtosmile.org](http://www.howtosmile.org) (mostly school-age, some Pre-K)

**Cognitive Thinking**

Harvard University Center on the Developing Child <https://developingchild.harvard.edu/science/key-concepts/executive-function/>

Center for Childhood Creativity Bay Area Discovery Museum

<https://centerforchildhoodcreativity.org/research/published/>

**Books: More on theory/background**

Brooks, Jacqueline. *Big Science for Growing Minds: Constructivist Classrooms for Young Thinkers*. Teachers College Press, 2011.

Copple, Carol. *Growing Minds: Building Strong Cognitive Foundations in Early Childhood*. NAEYC, 2012.

DeVries, Rheta. *Ramps & Pathways: A Constructivist Approach to Physics with Young Children*. NAEYC, 2011.

Early Math Collaborative. Erikson Institute. *Big Ideas of Early Mathematics*. Pearson, 2013.

Galinsky, Ellen. *Mind in the Making*. Harper Collins, 2010.

Gelman, Rochel et. al. *Preschool Pathways to Science: Facilitating Scientific Ways of Thinking, Talking, Doing, and Understanding*. Brookes Publishing, 2010.

Rosales, Allen. *Mathematizing: An Emergent Math Curriculum Approach for Young Children*. Redleaf Press, 2015

Stone-MacDonald, Angi et al. *Engaging Young Engineers: Teaching Problem-Solving Skills Through STEM*. Brookes Publishing, 2015.

Texley, Juliana. *Teaching STEM Literacy*. Redleaf Press, 2018.

Wilburne, Jane et al. *Cowboys Count, Monkeys Measure and Princesses Problem Solve: Building Early Math Skills Through Storybooks*. Brookes Publishing, 2011.

### Books: More practical

Anderson, Sally. *Where Does My Shadow Sleep? A Parent's Guide to Exploring Science with Children's Books*. Gryphon House, 2012.

Anderson, Sally. *How Many Ways Can You Make Five? A Parent's Guide to Exploring Math with Children's Books*. Gryphon House, 2012.

Anderson, Sally. *Math and Science Investigations: Helping Young Learners Make Big Discoveries*.

Barbre, Jean. *Baby Steps to STEM: Infant and Toddler Science, Technology, Engineering, and Math Activities*. Redleaf Press, 2017.

Daly, Lisa. *Loose Parts: Inspiring Play in Young Children*. Redleaf Press, 2014.

Daly, Lisa. *Loose Parts 2: Inspiring Play with Infants and Toddlers*. Redleaf Press, 2016.

Epstein, Ann. *Science and Technology*. HighScope, 2012.

Heroman, Cate. *Making & Tinkering with STEM: Solving Design Challenges with Young Children*. NAEYC, 2017.

Mason, Andrienne. Several titles including *Touch It!* and *Move It!* Kids Can Press

NAEYC. *Exploring Math & Science in Preschool*. NAEYC, 2015.

Weiner, Marcella, ed. *STEM Made Simple: 25 Activities by Preschool Teachers*. HighScope, 2018.

### Websites:

Kids are born scientists video by cosmologist Neil deGrasse Tyson

<https://www.youtube.com/watch?v=tbX6aMfPtEw>

Brooklyn (NY) Public Library STEM for Babies and Toddlers

<http://www.bklynlib.org/stembabytoddler>

Roots of STEM Early Learning [http://centerforchildhoodcreativity.org/wp-content/uploads/sites/2/2018/02/CCC\\_The\\_Roots\\_of\\_STEM\\_Early\\_Learning.pdf](http://centerforchildhoodcreativity.org/wp-content/uploads/sites/2/2018/02/CCC_The_Roots_of_STEM_Early_Learning.pdf)

Talking Is Teaching STEM Resources <http://talkingisteaching.org/resources/stem> and at <https://www.acf.hhs.gov/ecd/learning-about-stem>

Compilation of State Early Learning Guidelines, many of which contain STEM domains.

[https://childcareta.acf.hhs.gov/sites/default/files/public/075\\_1707\\_state\\_elgs\\_web\\_final.pdf](https://childcareta.acf.hhs.gov/sites/default/files/public/075_1707_state_elgs_web_final.pdf)

Also: <https://www.readingfoundation.org/readyforkindergarten/about-the-program>

<https://www.healthychildren.org/english/ages-stages/pages/default.aspx>

Massachusetts Board of Education. Early Childhood Advisory Council. Guidelines for Preschool Learning Experiences. [https://www.mass.gov/files/2017-08/20030401\\_preschool\\_early\\_learning\\_guidelines.pdf](https://www.mass.gov/files/2017-08/20030401_preschool_early_learning_guidelines.pdf) includes activities

National Association for the Education of Young Children STEM Resources

<https://www.naeyc.org/resources/topics/stem>

California Math Council: Math at Home Guides <http://cmc-math.org/mathathome-2/> and other resources

Joann Ganz Cooney Center STEM Starts Early Report [http://joanganzcooneycenter.org/wp-content/uploads/2017/01/jgcc\\_stemstartsearly\\_final.pdf](http://joanganzcooneycenter.org/wp-content/uploads/2017/01/jgcc_stemstartsearly_final.pdf)

Cuffaro, Harriet. When Unit Blocks Came to Gardaborg <https://www.bankstreet.edu/scholarly-initiatives/occasional-paper-series/32/when-unit-blocks-came-to-gardaborg/>

How Process-Focused Art Experiences Support Preschoolers by Laurel Bongiorno NAEYC  
<https://www.naeyc.org/resources/pubs/tyc/feb2014/process-art-experiences>

Stewart, Charlina. Early Art: What It Means and How to Encourage It <http://www.pbs.org/parents/education/music-arts/early-art-what-it-means-and-how-to-encourage-it/>

Rymanowicz, Kylie. The Art of Creating: Why Art Is Important for Early Childhood Development  
[http://msue.anr.msu.edu/news/the\\_art\\_of\\_creating\\_why\\_art\\_is\\_important\\_for\\_early\\_childhood\\_development](http://msue.anr.msu.edu/news/the_art_of_creating_why_art_is_important_for_early_childhood_development)

Cook Prize honoring STEM picture books published for children ages 8 to 10 (school-age)  
<https://www.continuum.umn.edu/2018/01/childrens-choice-awards-cook-prize/>