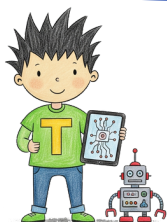


# Why STEM Story Kits?

## Our Research & Rationale



Science, Technology, Engineering, and Mathematics (STEM) literacy empowers students as they navigate society. STEM-literate individuals are well suited to excel in today's fast-paced world. Every child is curious, and that innate curiosity can flourish when nurtured. By weaving in literacy through read-alouds and reading comprehension activities, cross-curricular connections are strengthened and students deepen both their language and problem-solving skills. Through STEM Story Kits, STEM matters to students because we make it personal, relevant, fun, and experiential. **Our STEM Story Kits encourage people of all ages to do STEM in engaging and educational ways to inspire a lifetime of learning.**

## Future-Ready Foundations

STEM Story Kits aim to transform school communities by utilizing Design Thinking as a foundational framework (Razzouk & Shute, 2012). Design Thinking empowers elementary-age students to focus their thinking and engage their families and friends in the learning process. As an instructional approach, Design Thinking establishes a strong basis for exploring STEM careers, skills, and dispositions, fostering future-ready and resilient students (Fortus et al., 2018). By navigating challenges and designing solutions, students contribute to and transform their communities.

Design Thinking, rooted in problem-based learning, guides designers through a process of identifying needs, defining information, considering possibilities, taking action, and iteratively revising until satisfied (Plattner, Meinel, & Leifer, 2011). This process fosters critical and creative thinking, aligning with Mathematics and Science and Engineering Practices (Bleiler, Baxter, Stephens, & Barlow, 2015; Common Core State Standards Initiative, 2010; Fuson, 2023; National Council of Teachers of Mathematics, 2000; National Research Council, 2001; National Research Council, 2012; Olson, Olson, & Capen, 2014). Students utilize Design Thinking to organize information, analyze decisions, evaluate problems, and seek knowledge. It serves as both a creative and practical approach to address real-world issues and fulfill human needs, applicable to various fields (Scheer et al., 2009).

## STEM Story Kits Guiding Questions

**Guiding Questions are big questions that unite all STEM Story Kits - no matter the topic.**

- What value does imaginative/fearless thinking add to something I create or do?
- How does engaging in making and creating make me an innovator?

## STEM Story Kits Goals

Our kits have four primary goals that correspond with our mission of creating experiences that are personal, relevant, fun and experiential.

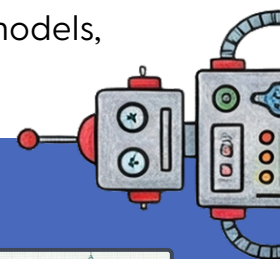
1. Foster critical thinking and problem-solving skills.
2. Inspire flexible and action-oriented thinking.
3. Cultivate a positive mindset towards failure and iteration.
4. Encourage confident sharing of work and ideas.



## STEM Story Kits Reaching ALL Learners

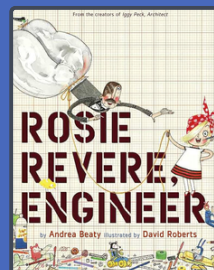
STEM Story Kits are thoughtfully crafted with the principles of Universal Design for Learning, ensuring that all learners can access and engage with STEM in meaningful ways, as described by CAST (2024), such as:

- STEM Story Kits provide multiple means of representation, offering a variety of formats, such as visual aids, hands-on explorations, and textual information, to cater to different learning preferences.
- STEM Story Kits promote multiple means of engagement by incorporating choice, flexibility, and real-world connections, allowing students to personalize their learning experiences and connect with the material in ways that resonate with their interests and strengths.
- STEM Story Kits support multiple means of action and expression by offering various ways for students to demonstrate their understanding, such as building models, creating presentations, or writing reflections.

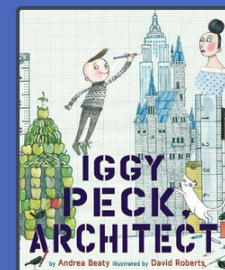


## Built for Creativity. Founded in Curriculum.

Our easy-to-use kits include everything you need to create an immersive one-hour, literacy-infused STEM experience, perfect for family nights or as an introduction to STEM. Engaging, standards-aligned curriculum provides educators with the tools to help spark students' passion for STEM.



Grades K-2:  
**Industrial Engineering**



Grades 3-5:  
**Civil Engineering**

Activities created for the picture book *Rosie Revere, Engineer* and *Iggy Peck, Architect* by Andrea Beaty & illustrated by David Roberts (Abrams Books for Young Readers) All illustrations © 2013 by David Roberts. All rights reserved. [www.AndreaBeaty.com](http://www.AndreaBeaty.com)

Learn more about each book by clicking above

## References

Bleiler, S. K., Baxter, W. A., Stephens, D. C., & Barlow, A. T. (2015). Constructing meaning: Standards for mathematical practice. *Teaching Children Mathematics*, 21(6), 336–344. <https://www.jstor.org/stable/10.5951/teacchilmath.21.6.0336>

CAST. (2024). Universal Design for Learning Guidelines version 3.0. Retrieved from <http://udlguidelines.cast.org>

Common Core State Standards Initiative. (2010). Common core state standards for mathematics. National Governors Association Center for Best Practices and Council of Chief State School Officers.

Fortus, D., Krajcik, J., Dershimer, R. C., Marx, R. W., & Mamlok-Naaman, R. (2018). Design-based science and real-world problem-solving. *International Journal of Science Education*, 40(18), 2067–2090.

Fuson, K. C. (2023, April 12). Building math talk for sense-making in the classroom [edWebinar]. edWeb. <https://home.edweb.net/webinar/math20230412/>

National Council of Teachers of Mathematics. (2000). Principles and standards for school mathematics. National Council of Teachers of Mathematics.

National Research Council. (2001). Adding it up: Helping children learn mathematics. National Academy Press.

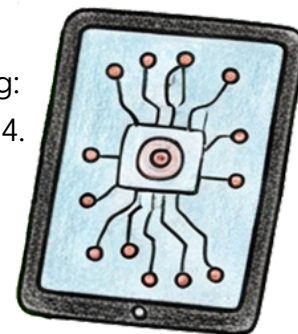
National Research Council. (2012). A framework for K–12 Science education: Practices, Crosscutting Concepts, and Core Ideas. Washington, D.C.: The National Academies Press.

Olson, T. A., Olson, M., & Capen, S. (2014). The Common Core standards for mathematical practice: Teachers' initial perceptions and implementation considerations. *Journal of Mathematics Education Leadership*, 15(2), 11–20.

Plattner, H., Meinel, C., & Leifer, L. (2011). Design thinking: Understand, improve, apply. Springer Science & Business Media.

Razzouk, R., & Shute, V. (2012). What is design thinking and why is it important? *Review of Educational Research*, 82(3), 330–348.

Scheer, A., Noweski, C., & Meinel, C. (2012). Transforming constructivist learning into action: Design thinking in education. *Design and Technology Education*, 17(3), 8–19.



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