



STEAM + Literacy in PK–5

A research-based professional learning model that harnesses Read•Connect•Play•Reflect™ to improve engagement, language, and understanding

“This has been the most valuable PD I’ve ever had! Your ideas and enthusiasm are so inspiring! I left the training on Monday and immediately started planning a fun lesson for my kiddos!”

— Suzanne T., Kindergarten Teacher, Canton, Ohio

Learn → See → Apply

The 3-day package:

Day 1: Hands-on teacher session (PK–4)

Teachers experience integrated STEAM + literacy as learners, using ready-to-teach lesson structures and templates.

Day 2-3: Classroom demonstrations with students

Modeled Read•Connect•Play•Reflect™ lessons in real classroom conditions (pacing, talk moves, routines, differentiation), reducing the “translation gap” from workshop to practice.

Day 3: Follow-up unpack + implementation coaching

We debrief what happened, name the moves, analyze student evidence, and adapt lessons for upcoming units. Teachers leave with an implementation plan and materials.



Why this works

- **Active, hands-on learning improves outcomes.** Active learning reliably increases performance and reduces failure compared with lecture-only instruction, supporting an “experience-first” approach where students investigate, build, test, and explain. ([PNAS][1])
- **Strong STEM instruction is inherently literacy-rich.** High-quality STEM learning requires students to ask questions, explain thinking, use evidence, and communicate, key reading/writing/speaking/listening behaviors embedded in the science and engineering practices. ([NGSS][2])
- **Doing before defining reduces cognitive overload and increases access.** Hands-on investigations create shared “anchors”, making vocabulary, reading, and writing more meaningful and easier to organize—especially for emerging readers and multilingual learners. ([NGSS][2])
- **This 3-day structure matches what research says changes teacher practice.** Effective PD is “practice-centered, active, modeled, collaborative, and sustained” with follow-up support. This sequence (hands-on learning → in-class modeling → debrief + planning) directly aligns to these evidence-based features. ([Learning Policy Institute][3])

“In addition to engineering and design and literacy connections, all of our students were channeling 21st century learning skills like collaboration, creativity, critical thinking, communication, and problem-solving as they worked to playfully solve Dr. Diane’s STEM challenges.”

— Amy F., Kindergarten teacher, Germantown, NY



Dr Diane Jackson Schnoor LLC
diane@drdianeadventures.com

STEAM + Literacy in PK–5

A research-based professional learning model that harnesses Read•Connect•Play•Reflect™ to improve engagement, language, and understanding



“The assistant principal came to me on Friday and said she’s never had a happier staff after a PD!”
— Tina Miller, STEM Coordinator

Professional learning objectives (teacher outcomes):

By the end of the 3-day experience, teachers will be able to:

- Design an integrated STEAM + literacy lesson sequence using a story or informational text as a “literacy anchor,” aligned to grade-level standards and an authentic phenomenon/ problem. ([NGSS][2])
- Facilitate academic talk that builds reasoning and language. ([NGSS][2])
- Implement hands-on investigations that explicitly connect what students do (STEAM) with what they say/read/write/draw (literacy). ([PNAS][1])
- Use formative assessment artifacts (talk notes, labeled diagrams, quickwrites, engineering plans, explanation frames) to monitor understanding and literacy growth. ([NGSS][2])
- Create a 90-day implementation plan with 2+ ready-to-teach lessons, materials lists, routines, and a simple evidence-collection plan. ([Learning Policy Institute][3])

What you should see in student learning (PK–4 outcomes)

Students will increasingly:

- Participate in science/engineering practices through talk, drawing, reading, and writing connected to investigations. ([NGSS][2])
- Use richer vocabulary and background knowledge because literacy tasks have a clear purpose (to explain, solve, and communicate). ([NGSS][2])
- Show stronger engagement and persistence through active, collaborative learning structures. ([PNAS][1])



- Darling-Hammond, L., Hyster, M. E., & Gardner, M. (2017). Effective Teacher Professional Development (Learning Policy Institute). ([Learning Policy Institute][3])
- Freeman, S., et al. (2014). Active learning increases student performance in science, engineering, and mathematics (PNAS). ([PNAS][1])
- NGSS Lead States / Achieve. (2013). NGSS Appendix F: Science and Engineering Practices. ([Next Generation Science Standards][2])
- Guskey, T. R. (2002). Evaluating Professional Development / Five Levels of Data. ([Tguskey][4])