

The Playful Foundations of STEM

Making the most of children's natural inner scientists.



Curriculum Connections

- A1.** Oral and Non-Verbal Communication (A1.1, A1.3)
- A5.** The Mathematical Processes: apply mathematical processes
- B12.** Scientific Investigation and Engineering Design (B12.1, B12.2, B12.3, B12.4, B12.5)

Key Takeaways

- Play is a great way for students to connect their lived experiences to STEM.
- Children innately use STEM skills during play: observation, collaboration, problem solving, critical thinking, creativity, communication, innovation and persistence.
- Modeling curiosity and asking open-ended questions reinforces critical thinking.
- Nurturing a growth mindset is important to set a student up for success in STEM.
- Open ended challenges help students to see themselves as “STEM People” and nurture the growth mindset.
- Student reflection on experiences builds communication skills and promotes critical thinking.

Strategies & Tips

- **Harness children's natural curiosity.**
Your students have a scientific instinct: They want to understand why and how things happen. Exploring everyday questions using STEM language and approaches connects their lived experiences to their academic ones.
- **Use STEM language when teaching.**
When you use scientific vocabulary, your students will, too. Try words like: observe, predict, hypothesis, test, longer, shorter, faster, slower...
- **Use your classroom's learning centres to bridge play and STEM.**
Have students sort food and create tally charts in the play kitchen. Participate in the engineering design process when using blocks. Investigate gravity with cars and tracks. There are possibilities in every area!
- **Celebrate failures as well as successes.**
When engaging in the scientific design process, both outcomes lead to learning and that is the goal! If a student is discouraged because things didn't go as planned, ask questions about what they would do differently next time. Help them see that they already know some solutions.
- **Use process-based questions to provide opportunities for reflection.**
Some examples include: What was tricky about that? How did you solve that problem? What are you most proud of?

