



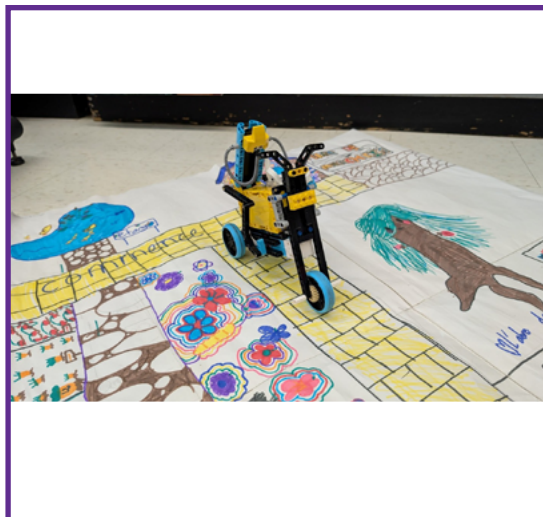
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Experiential French Learning Through Coding:

A LEGO SPIKE Professional Inquiry

Team Members:
Margaret Camp and Faye Ginies

School District:
Kawartha Pine Ridge District School Board



What We Did

We implemented an experiential, inter-curricular project in which Grade 4 – 6 students learned French directional language and applied it through hands on coding with a LEGO SPIKE robot. The project integrated FSL vocabulary development, introductory coding skills, and collaborative problem solving as students designed maps and programmed a robot to navigate a planned route.

The main activities included:

- Professional learning on LEGO SPIKE robotics, including best practices and troubleshooting for project sharing.
- French vocabulary lessons on prepositions and directional phrases through songs, games, videos, and shared writing.
- Coding practice using unplugged interactive coding activities and Code.org Labo de Jeux to build foundational programming skills in French.
- Group design tasks where students created a city or school map, labelled locations in French, and coded their robot to follow the route using the LEGO SPIKE platform.
- A culminating presentation where students shared their projects with each other and younger grade 3 classes.



What We Learned

- Cross-curricular connections: Not only did this project involve coding in French, but the students had a practical application for spatial awareness, mathematical calculations and measurement, including scale, angles, degrees, fractions, and decimal numbers.
- Vertical alignment strengthens learning and inclusion: These students ranged from grades 4–6, with very different levels of French and tech experience. The nature of this project meant that students had multiple access points. Differentiation and inclusion were embedded in the project process since students could choose their difficulty level or join the group using their skills in computers, mathematics or creative expression.
- French oral language naturally increased during authentic tasks: Students used more spontaneous French when they needed to communicate directions, negotiate map designs, or troubleshoot code, far more than during traditional oral activities.
- Younger students benefit from scaffolded exemplars: Grade 4 students and any students



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with modified or accommodated expectations benefited from visual models of maps, sample code blocks, and sentence stems to feel confident starting the task.

- Robot testing builds resilience: Students quickly learned that coding rarely works on the first try. The iterative test–adjust–test cycle helped normalize productive struggle and reduced frustration over time.
- Cross class presentations build purpose: Knowing they would present to younger classes increased motivation and improved the quality of student work. It also strengthened school wide community connections.



How We Shared Our Learning With Others

- Groups showcased their completed maps and robot programs to younger classes. Each class was intentionally matched with a younger grade to promote leadership, oral French use, and cross grade engagement.
- The teaching team shared key learnings with colleagues through collaborative discussions and hands on demonstrations. These sessions highlighted effective workflows, troubleshooting strategies, and approaches for integrating French language learning with robotics.



Links to Our Work

[Project Overview](#) [Experiential French Learning](#) [Move it Maps](#) [Les Direction](#)



Any Next Steps We Have To Continue Our Learning

- Consolidate and refine shared resources: Create a shared digital folder with exemplars, vocabulary lists, map templates, troubleshooting guides, and student friendly instructions.
- Co design a vertically aligned FSL + STEM progression: Map out what coding, robotics, and French directional language look like in Grades 4, 5, and 6. Identify which skills should be introduced, reinforced, or extended at each grade level to build a coherent 4–6 pathway.
- Strengthen teacher confidence with targeted PD: Consider a joint visit to Ontario Tech or another robotics PD opportunity.
- Pilot additional coding platforms in French: Explore Code.org in French more deeply or test out platforms like MakeCode or Blockly in French. Identify which tools best support language learning and which are most accessible for Grades 4–6.
- Build a shared assessment approach: Co create rubrics for French oral communication, coding logic, collaboration skills, map design and spatial reasoning. Use these across classes to ensure consistency and clarity for students.
- Expand cross class collaboration: Plan intentional pairings between classes (e.g., Grade 6 mentors Grade 4). Build in structured mentorship roles to support leadership and reinforce learning
- Integrate reflection and metacognition: Add student reflection checkpoints (written, oral, or video) at key stages (after learning vocabulary, after first coding attempt, after robot testing, and after presenting to other classes). Use these reflections to guide future instructional decisions.
- Plan for a larger culminating event: Consider a school wide “Robots en Français” showcase and invite families, administrators, or other classes to see the work.