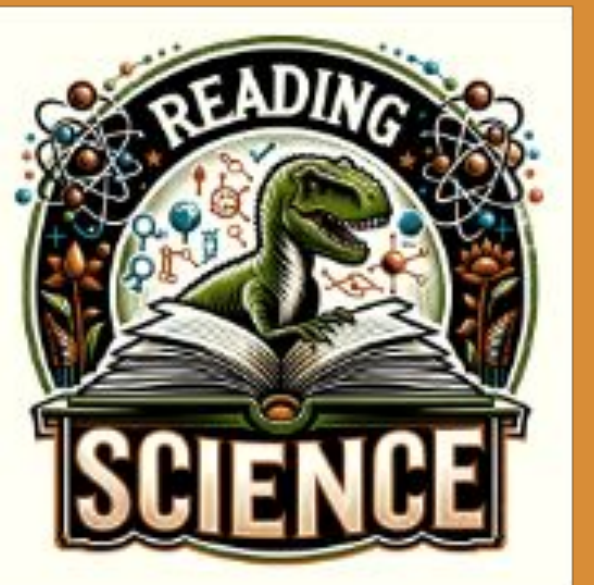


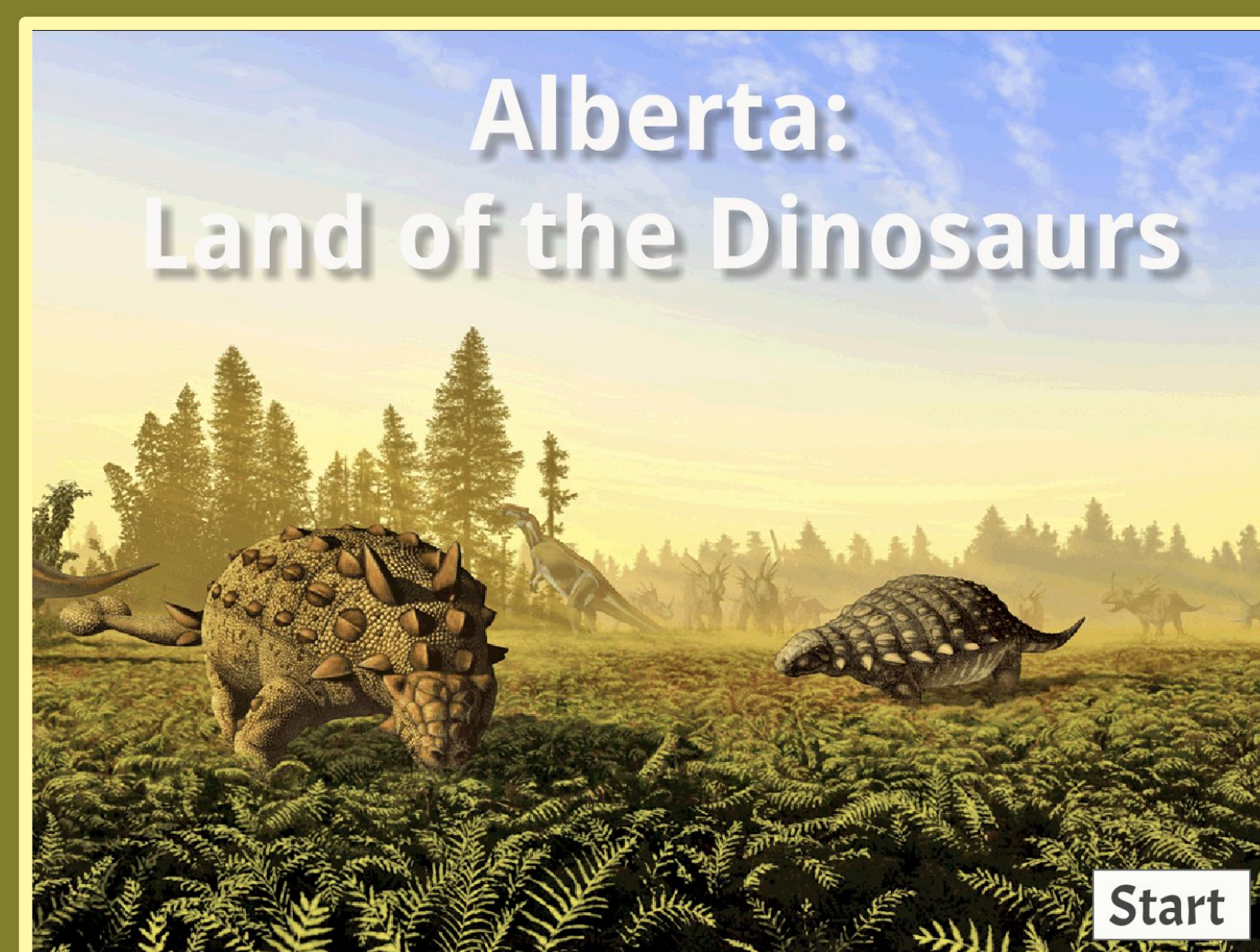


Context

The use of electronic textbooks (eBooks) in K-12 schools has significantly increased in recent years due to technological advances, remote learning, and increasing costs of print textbooks. This project investigates the impact of integrating interactive literacy supports into eBooks on students' science learning and reading comprehension.

Investigation Process

In this study, we began iterative development of an interactive eBook for elementary science using PandaSuite software. We shared the first book with several Grade 3 and 4 students to gain feedback on the function of the interactive text itself. We made further changes based on this feedback and conducted additional studies to investigate how the integration of interactive reading comprehension strategies impacts students' interactions with text, reading comprehension, and science learning. Effectiveness of the interactive literacy supports was gauged through pre- and post- assessments, interviews, and analysis of student engagement with the text.



Start page of the interactive eBook prototype

Prototype Overview

Key information provided in the text:

- Plesiosaur fossil photo from Fort McMurray with its associated caption
- Fossil samples for students to attempt to identify
- Information on plesiosaurs
- Map showing location of plesiosaur fossils in Alberta

Interactive elements:

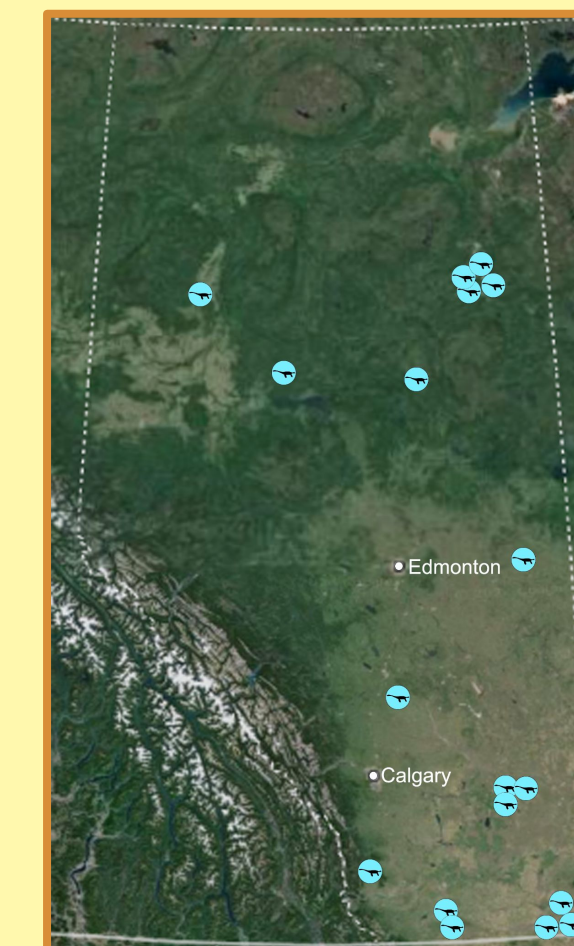
- Anticipation guide (select answer)
- Identify the fossil (fill-in-the-blank)
- Select the evidence to support the answer to the question (clickable text that copies to a summary journal)
- Indicate where water was likely found in Alberta (drag-and-drop markers)

What do you think?

Central Alberta was once covered by the **ocean**.

Yes ☐ No ☐ I'm not sure ☐

Anticipation Guide question for Grade 3 and 4 students for the "Inland Sea" segment of the eBook



Map of plesiosaur fossil locations in Alberta

Supporting Reading in Science: Anticipation Guides

"Anticipation guides are a content literacy strategy that supports students in developing scientific reasoning skills, understanding scientific concepts, engaging in aspects of scientific argumentation, and developing reading-comprehension abilities" (Pegg & Adams, 2012, p. 74)

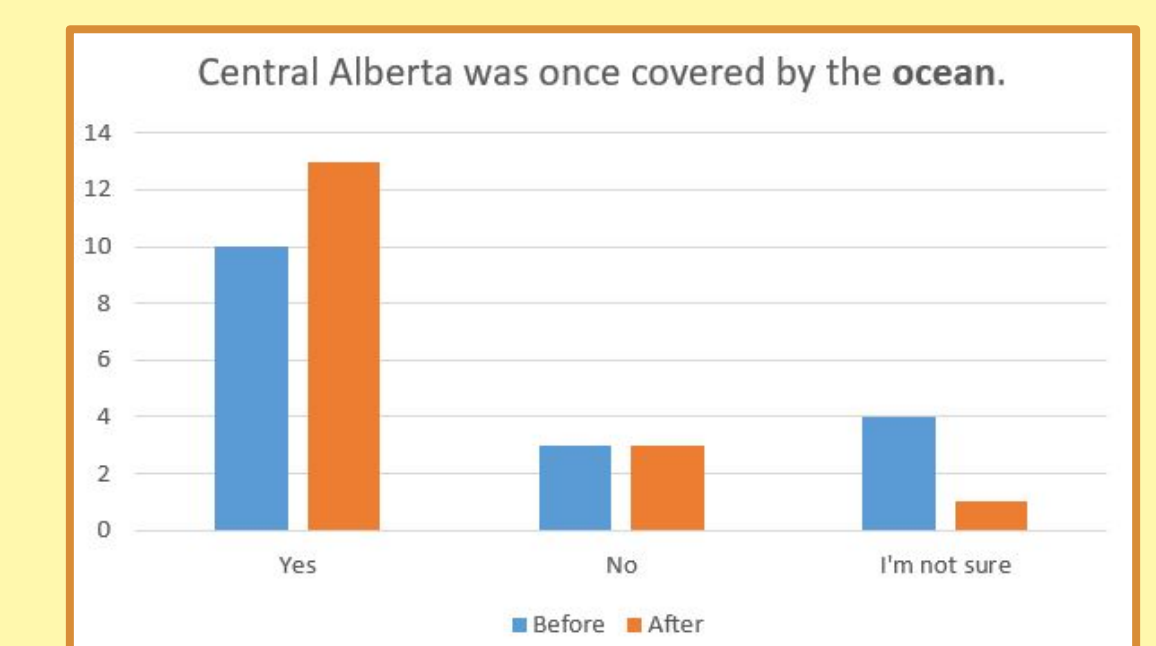
Initial Observations

Students responded with an array of written and verbal explanations for their "yes" answer to the anticipation question. These included:

- ★ "I/we learned [it] at school."
- ★ "Sea creatures lived here a long time ago."
- ★ "A long time ago all the continents were one big continent called Pangea therefore Alberta was part of the ocean."
- ★ "I don't know."
- ★ "Because plesiosaurs lived there."
- ★ "Because a lot of water dinosaurs lived here."
- ★ "There was a lot of plesiosaur around here."
- ★ "Hard to answer."
- ★ "Just because."

For students who answered "no:"

- "Ocean would have to have covered all of Canada."
- "I'm not sure."



What's Next?

Further eBooks will be developed after needs and context assessment at various grade levels. There will be iterative cycles of design and ongoing analysis of data collection from larger groups of participants.

References

Pegg, J., & Adams, A. (2012). Reading for claims and evidence: Using anticipation guides in science. *Science Scope*, 36(2), 74–78.

Thank you to Scholarship and Research Awards Committee, Faculty of Education & Office of the Vice-President (Research and Innovation)