Real World Relevance in the Math Classroom

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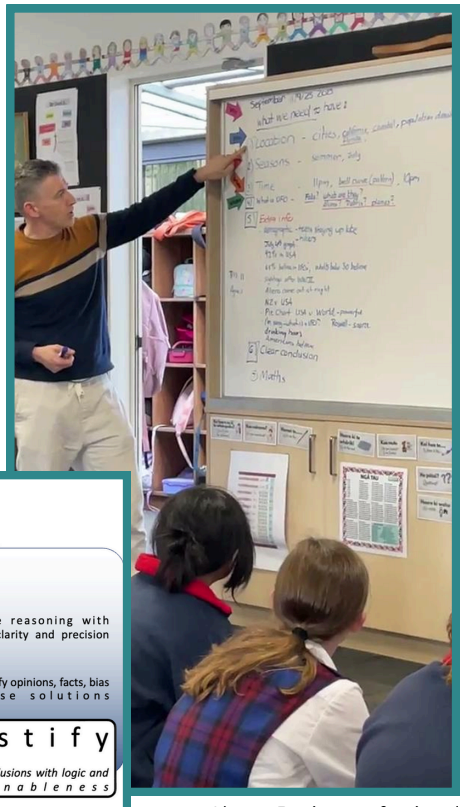
In today's educational landscape, the call for real-world relevance in learning is louder than ever. At Sacred Heart School in New Zealand, Deputy Principal and teacher for years 6-8, Liz Williams, is answering that call through innovative mini-inquiry tasks in her mathematics classroom. I sat down with Liz to learn more about how these short, focused tasks are transforming student engagement and deepening mathematical understanding.

Sacred Heart has been working with The Learner First for four years as part of a cluster of schools focused on mathematics professional learning in New Zealand.

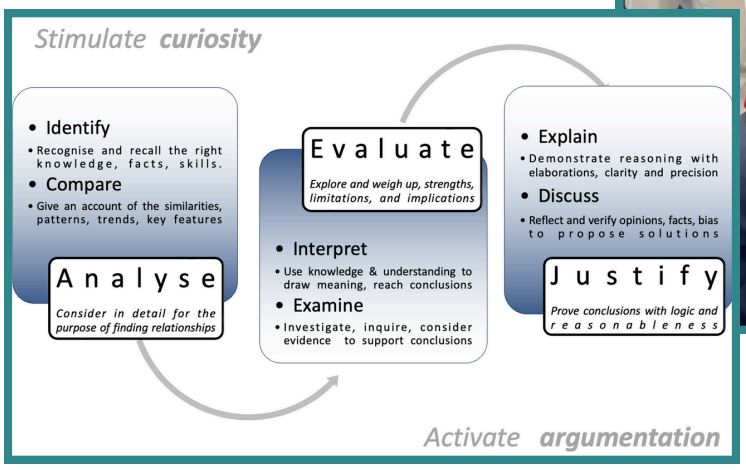
Liz, thank you for taking the time to share the inspiring work your team is doing to support student learning through a real-world lens. To start, can you tell us how the idea of mini inquiries first came into your classroom?

Liz Williams: It started back in 2023 when Rob Proffitt-White visited our school during one of our Math Cluster Professional Learning days. We were a couple of years into improving our math program with the support of The Learner First mathematics professional learning series. On this day, during a debrief, we were discussing rich tasks and student learning. Rob introduced the concept of a mini inquiry. It's a short (about 40-minute) task where students are asked to prove or disprove a statement using mathematical reasoning, using the skills they've already learned, applying them to a new situation.



Above: During professional learning, Rob Proffitt-White models the Mini Inquiry instruction with students while teachers observe.

To complete the task, students work in groups with assigned roles such as creator, researcher, organizer, and presenter. They follow a clear process: identify, analyze, evaluate, compare, and justify. The inquiry is linked to curriculum content, visible learning behaviors, and school competencies like collaboration and critical thinking.



Inquiry Statement

"The data clearly shows there are no real patterns or trends in the sightings of UFOs across the United States."

That sounds like an engaging challenge for students. Can you share an example?

LW: One of our first mini inquiries was about UFO sightings in America. I gave students a few graphics—maps showing reported sightings, scatter graphs, and seasonal data. With a 40-minute time limit, student groups were tasked with having to agree or disagree and prepare a 90 second, four-slide presentation to justify their stance.

Agree or disagree?

You have 40 minutes to prepare a 90 second presentation (up to 4 slides)
The presentation should have

- Statements from all participants
- Use some mathematics from Phase 3 knows and dos
- A conclusion with evidence as to agree/disagree

TIPS:
What do we mean by UFOs?
What conclusions can you draw on trends in times/dates/locations?
What sightings are seen in other countries?

What's your role during the inquiry?

LW: I become the questioner. I walk around asking things like, *"Why do you think that?"* or *"Can you show me another way to represent this data?"* I'm not feeding them answers—I'm challenging their thinking. It was fascinating to watch them work. Many students picked up on anomalies like the spike in sightings around the 4th of July. Their reasoning and estimations were stronger than I expected in this first inquiry task.

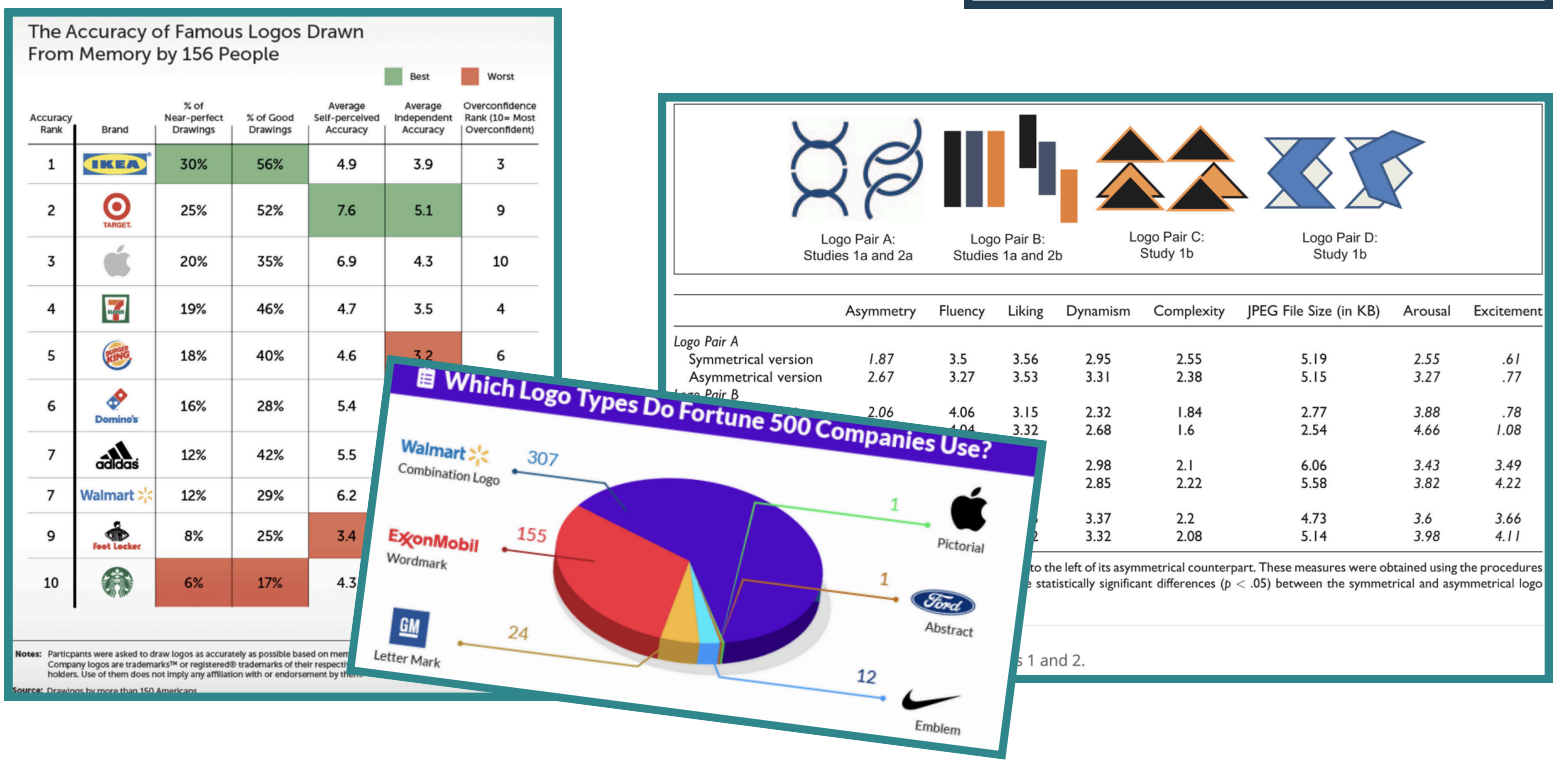
Do you have another example of an inquiry you created and used with your class?

LW: Yes, during our geometry unit, we explored symmetrical vs. asymmetrical logos. I gave them images and data—pie graphs, color analysis, and brand examples—and made the statement: "**Asymmetrical logos sell more products than symmetrical ones."** Students followed the same process and had to include a final slide explaining the math concepts used and how it connected to the curriculum and competencies however, during this inquiry, the groups were given two blocks of 45 minutes to create their argument and a 90-120 second presentation that supported it. In addition, this time students were asked to think about, make note, and share what mathematics was involved in their inquiry.

Mini Inquiry Task

Presentation Look Fors:

- What PHASE of LEARNING Know and Do have you heard them activate with evidence? (aligned to curriculum standards)
- Is their graph correct in terms of labels, axis, choice of scale, choice of type?
- What %, decimals, fractions have they used to compare/contrast?
- Is their data clear? easy to follow?
- Do they communicate clearly the groups point of view - for and against?
- Do they justify the reasons behind their decision?
- Which competencies have they shown?



examples of data shared with the students to begin their inquiry

How do these inquiries help you as a teacher?

LW: They give me an honest snapshot of what students know and don't know. In these examples, I could see who'd grasped statistical investigation or geometry concepts and who needed more support. It's a great way to assess application—not just whether they've memorized something, but whether they can use it in a new context. For example, estimation skills have improved dramatically. This was a big win in terms of math skills for my class.

What do students say about these inquiry tasks?

LW: They love the challenge and the short time frame. It keeps them focused. They're eager to prove their point, especially if it means proving me wrong! I don't have to do much beyond questioning during the inquiry. That's the joy of it, for them and for me!

"In what ways does this approach support students in developing skills and understandings that are relevant and transferable to real-world contexts?"

LW: It's twofold. First, the content—like logos—is familiar and relatable. Second, the skills they're developing are transferable. In the real world, they won't be handed numbers and told which graph to use. They'll need to figure that out themselves. These inquiries help them become discerning users of information.

Also, the abundance of skills that are outside of mathematical content are key. Working in groups (collaboration/interpersonal connections), having to justify their thinking (critical thinking), ensuring they are using presentation skills such as not just reading off the slides (communication) and more. Together, **these experiences equip students not just to succeed academically, but to navigate and contribute meaningfully to the world beyond the classroom.**

Real-World Relevance

Engaging with authentic problems and projects, students learn to apply their knowledge in meaningful ways, preparing them for the complexities of the modern world.

Liz, Thank you for taking time to share your practice with us! Any final thoughts?

LW: These inquiries give me rich information to guide future teaching. They show whether students truly understand concepts and can apply them. **That's the gold—seeing them use their tools thoughtfully and confidently.**

Written/Interviewed by Beth Hamilton
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