

Workshop

Thinking with Things about Mathematical Things

Presenter

Steven Greenstein

Montclair State University

Description:

As mathy people, we like to think about mathematical things. As a math educator, I like to think about how things shape our thinking about mathematical things. Things like physical manipulatives – tangible objects with pedagogical purposes – have a long history in math education. Recent research is contributing to the discussion by affirming that our thinking is not confined to the head. Rather, it is fully embodied. Even further, it's extended through our interactions with material things. As the theory goes, the knowledge we have arises from our engagement with the full sensations of these embodied and extended experiences. In a very real sense, *making sense* is *that which we make of our senses*.

In this talk, I will express some of these ideas through activities that invite the audience to make sense of mathematical ideas through their engagement with original manipulatives designed by future elementary teachers as part of their mathematics teacher preparation coursework. These experiences aim to demonstrate that manipulatives can provide the experiential context for activities essential to students' learning of mathematics, and at every level of mathematics. And as far as objects-to-think-with go, they can be fun-to-think-with, too.



Steven Greenstein is a former high school math teacher and currently an Associate Professor at Montclair State University. He likes to think about mathematical things... and how people think about mathematical things.

Steven is interested in enactivist theory and the phenomenology of mathematical experience; the design of tools that mediate it; cultivating creativity for radical change through qualitative mathematics; and issues of education and social justice. Through teaching and

research, Steven wants his work to support the practices that democratize access to legitimate mathematical activity that honors the diversity of learners' mathematical thinking and that is guided by agentic inquiry, mathematical play, and the pursuit of wonderful ideas.