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## Putting the Team in STEAM: The Art of Robot Making

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## Abstract

What began as a life partnership has evolved into an early learning STEAM team. Artist, David Thompson, uses science, technology, engineering and math, on a daily basis, to create robots and much more. Teresa Day Walker is an assistant professor of early childhood education. Through necessity they discovered their combined talents could be used to promote STEAM in early childhood. David and Teri teamed up to provide a nearly impromptu robot making demonstration for 100 kindergarten students. After reading their co-authored book, *Robot Hide and Seek*, both, clay based and 3-D modeled images were used to generate interest and discussion. Ultimately, Boom, a resin robot, took center stage during the engaging hands-on casting demonstration as he evolved from two separate chemicals, into his combined liquid state, and finally his solid self.

## Author/Artist Bio

Teresa Day Walker, Ed.D. is an assistant professor at Central Washington University and has spent much of her professional career working with young children and families through Head Start and Washington State's Early Childhood Education and Assistance Program.

## Keywords

Robot, Early Childhood, Casting, 3-D Modeling, Sculptor

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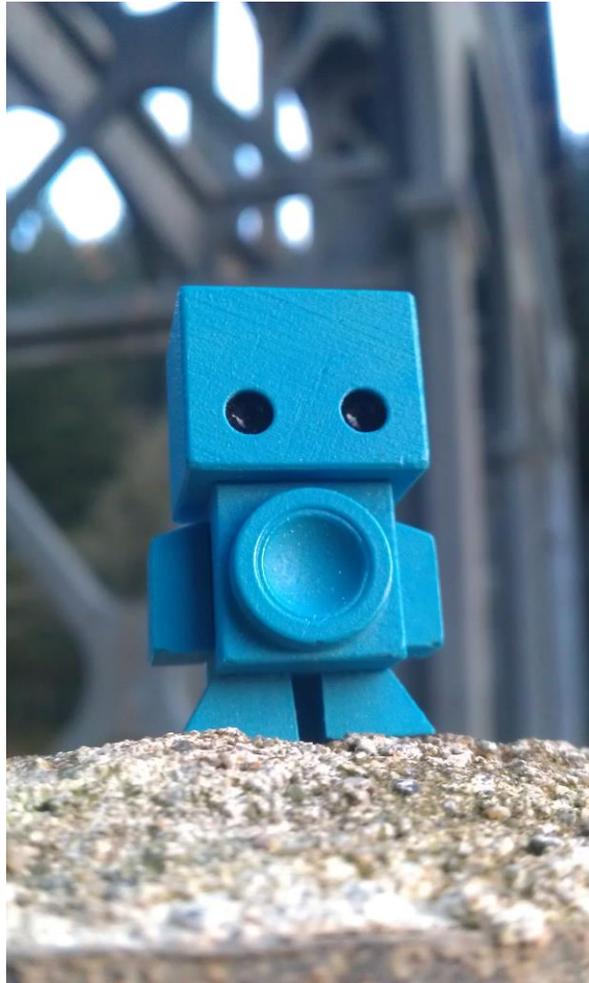


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*Teresa Walker & David Thompson*

Robots barely registered on my radar screen. In fact, I found them quite cold and impersonal, until I met David, the sculptor with whom I now share life's adventures. Somehow David is able to elicit expression and emotional depth, to characterize his robots. I watched as David told his story of creating "Squidy" a sea creature. It became quite apparent how the lines of the story translated to the lines in Squidy. Then I was introduced to Lank, a hand-crafted resin robot born from a silicone mold of the original 3-D modeled print. There I stood, in total amazement. David sees robots everywhere, in most everything. Because of his passion for art and science I see the world in new ways.



**Boom Fab 4 (other BellyBots)**

While visiting the Oregon Coast, we took pictures of Lank and his friend Boom using various landscapes and features. Boom is also a resin bot, but was clay fashioned prior to the silicone mold formation. More pictures were taken along White Pass in Washington State. As a gift, I created a custom book for David, *Robot Hide and Seek*,

featuring photos of Lank and Boom from our trip. From there we created stretch canvases, magnets, and puzzles all from easy to access online companies. Little did we know these items were soon to become instructional tools.



**Lank**

The night before 100 kindergarten kids were to arrive at Central Washington University from the Othello School District, I was asking David if he would demonstrate robot making for children. David's work as an artist exemplifies STEAM offering a great connection for learning. My background is early childhood education so I knew we would make a great team. He was willing and began assembling his demonstration kit.

We started by introducing Boom in "person" and on stretch canvas, then read aloud *Robot Hide and Seek*, leading to the

introduction of how to make a robot like Boom. David has a whole series of BellyBots, characters with technology-related bellies, Boom has a speaker on his. David showed several robot examples, explained how they were created using clay or 3-D modeling. He described how the silicone mold was made, showing an example mold, which he then used in the live demonstration.

He measured chemicals, first the A side, then an equal measurement of the B side, as he combined the two he described the process taking place. Slowly pouring the chemical combination into the mold, held great suspense as children watched with intention. Right before their eyes, the solution changed properties as it began to solidify. They were able to touch the hardening mixture and feel the heat generated from the reaction. Engaging in scientific language became part of the day, the overall experience. Questions became more frequent and intense. Waiting was a slight exercise in delayed gratification as it took about 10 minutes for the robot to fully cure for mold removal. That day Boom achieved celebrity status and we all learned a little more about the magic of STEAM.

**Fab 4 (other BellyBots)**

