

Learning By Doing

Giving Kids Freedom to Explore Makes Learning Matter

By Holly Novick, Head of School

"Please divide yourselves into three groups of at least four people." This is the prompt written on the whiteboard when 3rd grade enters class on Thursday. After successfully completing the division, each group is handed a task card indicating a location. When the group arrives at the location, they find a task card that reads: "You are hosting an event, and you will be serving hot dogs on paper plates. There are 18 guests coming, and each one will be served up to two hot dogs. Choose a project manager and then spend 10 minutes brainstorming what you will need to do to create the event. What would you do?" This is the problem posed to the class by teachers Sigi and Gus. And that's it. Now the students have to work it all out on their own. How will they do it?

This is student-centered learning. Teachers pose an open-ended problem and students organize themselves to find a solution, of which there may be several good ones. In this case, the students proposed their plans for making the event happen.

From there, they organized a walking field trip to our local Jon's Market, where their teachers simply said, "Go find what you need." The students found the hot dogs and buns and recorded the prices. They also discovered that hot dogs come in quantities of 10 but buns are eight to a package, which presented a math puzzle they needed to work out. After collecting their data, they returned to the classroom and got down to work. Instructed to present their findings in the form of a math problem, the project managers reported to the class what their

group proposed. One group had forgotten that each person needed two hot dogs, and so needed to regroup to determine the sum of $18 \div 2 = 9$. Another group worked out the number of hot dogs correctly, but forgot to factor in the cost of the paper plates. By reporting in, all the groups were able to collect the full set of data they needed to complete their task.

They are currently working on determining exactly how much money they will need to purchase the hot dogs and buns, and then will propose a way to raise the funds. After the groups propose their various money-making strategies, the entire class will vote for the winner. Eventually, this experiment will culminate with a victorious return visit to Jon's and the well-deserved reward of finally getting to cook and eat the hot dogs.

Here's an important question: why would we go through all this time and effort to teach kids how much hot dogs cost? Couldn't we have worked through this whole scenario hypothetically, and avoided the

need for permission slips, field trips and expense? The answer is quite simple. The effort is worth it because of everything else the students learn in the process. While their teachers step into the role of facilitators and advisors, these kids are taking initiative, working together, and figuring out how to solve a multi-step problem. They are negotiating a grocery store by themselves and asking questions that help them get the information they need.

They are seeing real-world applications of the math concepts they have been studying so far this year, and learning why math matters. They are using the democratic process, building confidence, and finding their own voices. They are developing leadership, critical thinking and collaboration skills. They are learning that when it comes to working with others, the group is able to solve a problem that would stump an individual. And they will remember this experience, because it's how real-world solutions are built.



Third grade students venture out to Jon's Marketplace to gather hands-on research.



Information gathering is essential to the success of the project!

This is what we call “learning by doing” at the Country School. We begin these experiences in our earliest grades, providing our students with opportunities to think through a problem, strategize, make mistakes, try again, and find workable solutions. I’m always amazed by what even very young children can do for themselves. And when a teacher challenges them with an open-form question, the students develop a sense of “I can” that they bring with them to the academic challenges of later grades.

Diane Demee-Benoit, contributing editor for *Edutopia*, explains that “a thoughtful curriculum centered on project learning is a superior way for students to learn 21st-century skills such as critical thinking, creativity and innovation, problem solving, self-direction, and teamwork, because students must develop and use these skills to complete their projects” (“Hands-On Education Drives the Lesson Home”). These projects create a real-time need for students to apply mathematical, scientific, historical, or language concepts in order to create or investigate

something specific, which in turn makes the concepts directly relevant to a real-work application. There’s no room for the question “When am I ever going to need this?” in a project-based learning environment.

Education research reveals that hands-on learning is not only a great way to motivate individual and collaborative learning, but it also helps students create long-term retention of the concepts they study, rather than the short-term strategy of memorization and testing. A study from Purdue University reports that in a group of 8th grade students learning about the human impact on water and water quality, those students who built a water purification device system had “a deeper understanding’ of the concepts than the students who had lecture-based lessons” (“Hands-On Learning Vs. Lecturing,” *Education Week*).

When students are able to incorporate all their senses – sight, smell, sound, touch, taste – and different learning strategies – visual, auditory, kinesthetic – into their studies,

they learn better. When they create a theory and then test, refine, retest, revise and finally confirm it, what they learn becomes deeply written into their memory. The interplay of technology and physical hands-on work is increasingly becoming a prominent part of the elementary and middle school classrooms, in projects inspired by the maker movement, such as building a working telegraph when studying the Civil War or use a 3D printer to bring their ideas to tangible life (“Technology Revitalizes Hands-On Education in Classrooms,” *Scientific American*).

This is what we’re talking about when we say the Country School brings a progressive approach to traditional education. Instead of saying “Here’s what you do,” we ask “What would you do?” I can tell you that the answers to that question are wonderfully surprising, inventive and thoughtful. We’re all engaged in the great adventure of learning by doing, and learning a lot from each other in the process.



Victory! The hot dogs have been located!