



Kids learning math with dice

Let's get physical

Physical education classes are not the most likely place where children learn about math, physics and engineering, but at The Campus School, they are possibly the first place where kids are introduced to STEAM concepts.

Pamela Pyska has been teaching physical education at The Campus School for 32 years. In 2015, when the school developed a new STEAM-based curriculum matrix, she quickly discovered it wasn't going to be a problem incorporating STEAM into gym and PE classes.

"We were already doing it," she smiles.

When students push and pull each other on scooters or roll hula hoops down slopes of varying degrees, they also learn about the laws of motion, mass and centrifugal force. Even the youngest students prepare for basic math skills by playing games with numbered tennis balls and big foam dice.

The benefit of incorporating STEAM into physical education is that a child doesn't simply hear science terminology.

"They understand the concept and feel it with their body," Ms. Pyska explains.

I saw this for myself when I visited The Campus School, a preschool through 8th grade Catholic, lab, independent school located on the Carlow University campus in Oakland.



Team cheering rafter

Diving for gems

It might have been winter outside, but in the basement of St. Joseph Hall Gymnasium, the kids in Jordan Wiegand's fifth grade class are wearing swimsuits and eagerly lining up on both sides of the swimming pool. Ms. Pyska explains to me that Mr. Wiegand is going to throw handfuls of plastic "gems" into the shallow end of the pool and the kids, who are divided into two teams, have to swim to the bottom and collect as many as possible. Each team must sort, count and calculate the worth of their haul.

Before the kids jump in, Mr. Wiegand reminds them that when he calls time, "I'm only going to give you five seconds to get out of the pool!"

Suddenly, the surface of the pool, which was smooth and glassy a second ago, looks like it's boiling as fifth graders splash, dive and scoop up colorful shapes.

As the kids swim to the sides to drop off gems in their team's cache then dive down for more, Ms. Pyska tells me that the best teachable moments come when kids asks questions, like "why can't I get to the bottom?" which presents a perfect opportunity to talk about buoyancy and the physics of swimming.

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When Mr. Wiegand calls time, the kids scramble out of the pool and gather around each pile to sort their accumulated treasure.

"If you have any flower shapes, those are worth ten each," he calls out. "Yes!" the kids squeal.

Moon shapes are worth 20 and red circles are worth... uh oh...negative five.

"I knew that was coming," groans one savvy child.

At the end of the game, Ms. Pyska, who is the only one using paper to add, multiply and subtract the points, confirms the final scores.

"Good job Team 1!" congratulates Mr. Wiegand.

Amazon River crossing

At The Campus School, these are the things you need to cross the Amazon River: one big mat, six noodles, four red kickboards and two blue ones.

In this game, each team has to build a raft to float each person across the pool without touching water. Once across, the kids must throw the foam materials back for the next person.

If the kids are already studying the rain forest in science class, this game lends more to the conversation about the Amazon, animals and "reasons why you wouldn't want to dip your feet in the river." Also, raft-building teaches

aspects of engineering, physics and math.

"The kids learn that if they build it too high, it will topple," Ms. Pyska says.

As the kids prepare their rafts, I overhear one girl advising her teammates. "You have to distribute your weight or you're going to sink like I did last time," she wisely says.

Working feverishly, the kids experiment with various raft designs. They laugh and grimace as they cheer for their paddling teammates, who float and/or flail across the pool. It's hilarious to watch and a terrific way for students to learn the Newtonian truth that for every reaction there is an equal and opposite reaction.

During my visit, I discovered that Carlow University has made the decision to close the pool to move forward on other goals to benefit the university. Although a pool is a great STEAM classroom, I have no doubt that the PE teachers would agree that, with or without a pool, physical education classes aren't the only place for kids to learn about STEAM.

But they are the most fun. ■

Ann K. Howley, enjoys writing about STEAM education in Pittsburgh. If you have a story idea, contact her at akhowley@gmail.com.



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