

Visiting Lab Ratz



Girls try marker pen experiment

“**W**hat are we doing today?” curious youngsters ask instructor, Shawn Miller, who is setting up three microscopes in the teachers’ lounge at McKnight Elementary School in McCandless.

“Today, we’re doing one of the hardest sciences to study, because it is really expensive, so we know little about it,” says Shawn.

He’s talking about neuroscience. Twenty-two children from grades k - 4 are sitting around tables, waiting for the Lab Ratz Science Club to begin. They are in for a treat. Today, they will conduct different tests to locate nerve

placement in their bodies and watch Shawn use HIS brain waves to control THEIR arm muscles.

Shawn is the founder and president of Lab Ratz, which offers after-school and summer camp programs, including this popular science club. The Lab Ratz Science Club curriculum is designed to complement and reinforce science concepts that the children learn in school. However, there are no tests, pressure or memorizing. The instructors encourage the kids to think for themselves and learn by doing creative, hands-on experiments that make science relatable and fun.

“Our first week was about asteroids and we did crystals two weeks ago,” Shawn tells me. “Last week was engineering, so the kids had to design something that protected marshmallows from falling out.”

Shawn begins today’s lesson by asking the kids to hold up their hands and tap their fingers together. “How long does it take for you to feel it?”

“Instantly!” the kids reply.

After a brief discussion of nerves, vertebrae, spine, muscles and neurons, the children break up into groups to get a close up look at samples of nerve, muscle and bone cells under the microscope. He shows them a curvy wedge of bone. “Make sure you pass around the vertebrae!”

The bones are real, but not human, he points out, which I think reassures me more than the enthusiastic kids who are forming lines at each microscope station.

The first experiment demonstrates the distance between nerves. Shawn closes his eyes and asks a child to put a dot on his arm with a marker pen. Then, with his eyes still closed, he uses a different colored pen to pinpoint where he thinks that mark is. He opens his eyes and shows his arm to the kids.

“Here’s his mark. Here’s my mark. They’re pretty far away.”

Next, he asks the kids to hold up their hands and try to only move their pinky, which they can’t do without moving other fingers.

“The ulnar nerve controls a lot of the hand,” Shawn tells them.

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watch their eyes widen. instead of roll.

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The hour speeds by, as the kids practice testing their reflexes by trying to grab a yardstick the instant their partner drops it. They also discover how much weaker they feel when they are sitting half on and half off a phone book and try to resist when their partner presses down on their outstretched arms.

The highlight of the hour is definitely Shawn's mind control experiment. He dangles a handful of electrodes and electrical wires in front of the kids.

"Are we going to get electrocuted?" one child asks.

"Not electrocuted. You're going to get pulsated." It doesn't hurt, he insists, but feels weird like when a body part falls asleep. Nonetheless, when looking for a volunteer, he still requests "someone brave."

Shawn attaches electrodes to his own arm and the arm of the brave boy wearing glasses and a red hoodie. One of the kids sitting at the table groans, "Uh oh, this might be painful to watch."

Don't worry. It wasn't.

When the electrodes are in place, Shawn moves his arm, which forces the boy's arm to curl up. The boy's eyes widen and he smiles. When he returns to his seat, I whisper a question to him, "What did that feel like?"

"Tingly," he admits.

Shawn reminds the kids that they don't have to do this experiment if they don't like that tingly feeling, but almost all of them take turns lining up, eager to try it. After everyone gets their turn, he explains that this type of machine was originally designed to help people who can't move, or who have lost an arm, like a veteran. "It's a cool test," he says.

The goal of Lab Ratz is to "give students a perspective of science that promotes curiosity, problem-solving and discovery – characteristics that can be applied throughout life."

When Shawn announces that next week, they are going on a fossil hunt, I'm not surprised when the children cheer YAY! ■



Studying nerves and muscle



Shawn demonstrates machine

Ann K. Howley, author of Confessions of a Do-Gooder Gone Bad, enjoyed learning about neuroscience as much as the kids from McKnight Elementary School.