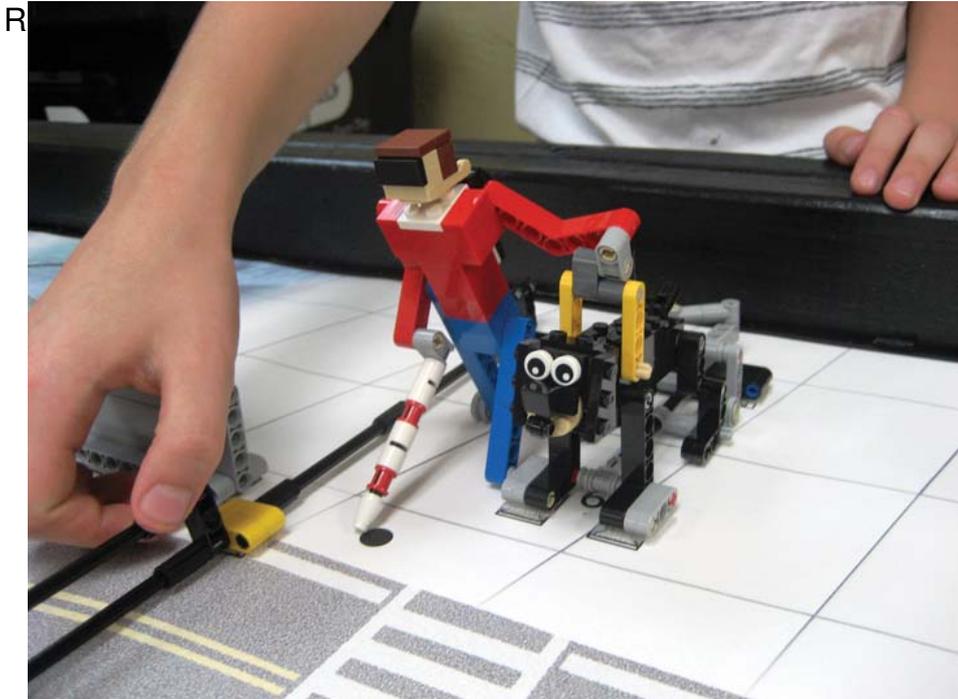


Raccoons and Robotics

Written by Janet Goodman, BT Contributor
January 2017

Students learn critter care through the Lego Challenge



Registered nurse Delores Ward coaches youngsters in robotics.

For five years she has held classes at Miami Shores Community Center, as well as within the homeschool community, incorporating Lego building bricks into her robotics sessions. She has no formal engineering background but first learned about machines as a kid watching her father build gyrocopters.

This is Ward's second season coaching a team of local children, preparing them for the First Lego League (FLL) Challenge.

The Challenge is a worldwide tournament that started in 1998 and now involves 32,000 teams of students and 32,000 robots competing at 1464 events in 88 countries. Teams are given a real-world scientific problem to research and solve. In a separate challenge, they "also must design, build, and program a robot using Lego Mindstorms computer software technology," according to the FLL website, "then compete on a table-top playing field."

Last year's theme was recycling; in the 2016-2017 "Animal Allies Challenge," teams must

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“identify a problem when people and animals interact; design a solution that makes the interaction better for animals or people, or both; and share the problem and solution with others.”

Ward’s team consists of eight boys, ages 10 through 14. Team 19063, which hasn’t yet picked a name, chose for its project the raccoon nuisance problem at Greynolds Park in North Miami Beach. On January 22, the boys will give an oral presentation with visual aids during the FLL qualifying tournament in North Palm Beach.

According to the Humane Society of the United States, raccoon numbers in urban areas are often greater than in rural areas. This overpopulation puts stress on animals to find food, forcing them to forage in garbage cans.

Greynolds Park reviews on yelp.com reveal numerous complaints about raccoons. Laura Phillips, public information officer of the Miami-Dade County Parks, Recreation, & Open Spaces, acknowledges periodic but not frequent complaints. “Concerns are mostly centered on the number of raccoons in the park and the raccoons venturing into neighboring properties,” she writes in an e-mail exchange with the *BT*.

“If park managers witness patrons feeding raccoons, they ask them to refrain from this practice,” notes Phillips. “Fines can also be administered by park security staff. Trash is emptied on an as-needed basis, seven days a week.”

Park managers also conduct periodic trappings and relocate raccoons to a safe location within the 618-acre Milton E. Thompson Park, off Krome Avenue. Phillips finds no records of bites or rabies outbreaks involving any of the raccoons at Greynolds Park. Asked about covered trash cans, she replies, “Garbage receptacles do not have lids -- lids are not practical in high-use areas.”

Ward’s Lego robotics team has done research at Greynolds, but the boys also believe that the issue of caring for raccoon health and safety is important in all parks. At the competition, the team will propose a solution: incorporating signage to tell visitors that feeding wildlife makes the animals too tame; offering new raccoon-proof garbage-can designs; suggesting a park rule with food only allowed in picnic areas; and proposing raccoon feeding stations to provide a healthier

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option. Upon learning that the Parks Department finds garbage lids impractical, the team is more determined than ever to counter that opinion with its own research.

In November the *BT* visited Team 19063 at work on the separate, robotics part of the challenge. Ward and her group of bright students were programming their robot to complete certain mechanical tasks, which they plan to demonstrate on a huge game board during the competition without the help of remote controls. “Each completed task is worth so many points,” explains Ward, adding, “The harder the task, the higher the point value. Teams have two and a half minutes to complete all the tasks.”

The game board contains 15 designated “animal allies” areas, featuring different animals and sometimes their handlers, all built by the team from Lego parts. Each team must program its robot to fulfill specific animal-related tasks with these Lego critters along the board. Among other actions, the robot must assist a guide dog and his blind companion, transport a shark tank, feed a gorilla, release pandas from their zoo enclosure, and empty milk containers at a dairy farm.

Besides presenting the oral project and competing in the robotics course, each team gets an impromptu teamwork challenge to test core values, such as team spirit, cooperation, good sportsmanship, and having fun.

Having had a late start in October, Team 19063 is meeting twice a week to prepare for the upcoming tournament. If the boys qualify, they move on to compete in regionals.

“Kids love it,” says Ward. It’s a fun way to use science, technology, engineering, and math (STEM) to solve problems, not to mention develop team and presentation skills. The Boy Scouts of America introduced a robotics merit badge in 2011, and Scouts competing on her team will be earning the badge, as well.

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