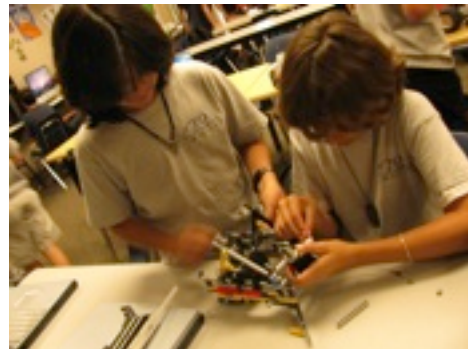


Palm Desert Charter Middle School Robotics Program
Andrew Mehta
Luke Martello
Desert Robotics

Palm Desert Charter Middle School Robotics Program

Here at PDCMS we have a exceptional daytime elective class and a exhilarating after-school program. First, our day time elective class offers a wide variety in skill level. Students are offered the beginners class first, but if they improve they could join the advanced robotics elective class during the next year. In the after school class students can improve their robotics skills by letting them express their engineering imagination in any form they want through Botball.

The beginning robotics class introduces robotics to kids who want to work in this area during school. Basically, what kids do is work with LEGO pieces and construct robots. You can see two kids working on their robot for class in **PICTURE 1**. When they are finished building construction, they learn how to program it. The building and programming lessons are provided by a instructional software curriculum created by Carnegie Mellon.



PICTURE 1

Carnegie Mellon prepares a instructional course with worksheets and videos to guide students through the process of building and programming their robots. There are different sections in the course such as “Full Speed Ahead” which starts the kids off by showing them how to build the robot and program it to move forward, and “Get in Gear” which speeds the robot up after the student has completed the course. There are different sensors in the program like touch sensors and ultrasonic sensors so the kids can use them to learn what they are and how they will help their robot. It is a very structured course to teach the students “STEM”. STEM stands for science, technology, engineering, and mathematics. This robotics curriculum mainly focuses on combining those subjects and teaching them to the class.



PICTURE 2

The advanced robotics class works more with Botball. They learn more C programming code. You can see some kids programming in **PICTURE 2**. In this class, students can either work on the Botball game itself, or create other items that might be used for the showcase for Botball later on. You can see some of the items kids have made and looked at in **PICTURE 3**. This is the main class where the Botball robots are produced. In this class, Mrs. Reynolds (A Botball Coach) comes and helps the students with Botball since she is the director of Desert Robotics.



PICTURE 3

In this class, since the students have already gone through the robotics course from Carnegie Mellon, they have the freedom to create and build whatever they want. Like I mentioned before, they also work on Botball. This year, this is mainly how the class went:

Kids went to the pre-conference and brought the kits for each of our teams here, along with the game. We then got into organized groups and started building. Then, we worked on documentation. You can see two students in the advanced robotics class working on these things in **PICTURE 5**. When we finished that, we worked on our robots again until it was time for regional competition. We then improved our robots, worked on Botball papers and showcases, and now we are waiting for Global Competition.



PICTURE 4

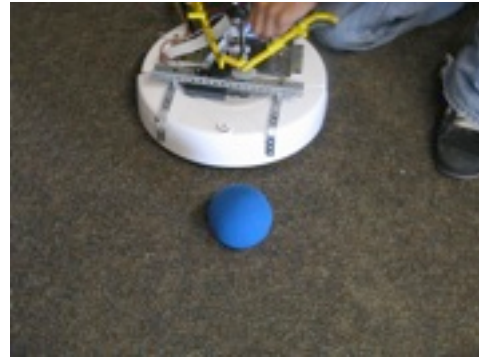
Then, there is Robotics Club. This is an after-school club for kids who either want to work on robotics more, or take a different class and still want to do robotics. This club is all Botball. This is where you can work seriously and not be disturbed by kids who don't work as well in the classes. Kids in *any* level of robotics are welcome to join this club.

Here are some of the comments that some students in the advanced robotics class have written about the class. They are only two paragraphs each, but they are great comments. The following include comments from Alexander Nabavi-Noori, Alexander Okamoto, and Kody Punt:

Alexander N.'s

I've learned many things in my 3 years in the robotics program at PDCMS. Things ranging from the latest innovations in technology to learning simple computer programming to

learning the engineering process. [You can see him learning how to follow the blue ball in **PICTURE 5**] This program has also taught me other important things like teamwork and how to be able to work well with others, and collaborate in groups to achieve a common goal.



PICTURE 5

Through this class I've learned a lot about technology and engineering, and this class has been a really good start for me, towards a career in this field. Not only did I participate in the Botball Robotics Competition during my time in this class, but I also volunteered at school functions running the computers and games at the dances, setup computers and other peripherals for teachers, and also got involved in many independent software projects that I worked on in teams. Overall this class has been a very good foundation for my future in this field.

Alexander O.'s

This year in advanced robotics I learned how to program a CBC. I learned to think strategically and that teamwork is needed for everything.

I have enjoyed making many different things. I have also discovered many things I never knew before. This has been a great learning experience.

Kody's

I like Advanced Robotics for many reasons. First, I like to build and design the robotics. I can program them the way I want so that they can compete. Competition is a cool way to see if they work. [You can see a picture from regional competition in **PICTURE 6**] If they don't work, I can go back and try to figure out what I can change.



PICTURE 6

Next, I learned how much robotics are used everyday. They can be used in the army, with prosthetics, and even to find drug smugglers in underground tunnels. I think robotics will be very helpful in the future. I can't wait to discover more about advanced robotics next year.

In conclusion, robotics is for everyone. If you like something else, and take that class instead, Mr. Clark (The teacher) will still allow you to come after school for Robotics Club. We here at PDCMS are very lucky to have these opportunities to work on robotics.