

The PALS Innovators -Park Activities Locker System

Group: Five 7th graders in Cupertino, Aaron, Jason, Naoka, Nathan, Ryan

INNOVATOR OF THE YEAR (TECHNOLOGY)

This award recognizes an individual or group that has made an outstanding contribution in the area of technology in the City of Cupertino. **To nominate an innovator for this award, please answer the following questions:**

1. Define the contribution your nominee made in the area of technology.

Aaron, Jason, Naoka, Nathan, and Ryan are five energetic, fun loving, caring and inquisitive 7th graders in Cupertino who researched and developed an innovative **PALS, Park Activities Locker System**, a free automated sports equipment check out system in Cupertino's flagship Memorial Park in the heart of the Silicon Valley.

Public usage of park space has continued to drop due to competition from other social trends, including increased classroom activities and heavy electronic usage. To draw more people to parks, the children focused on redesigning park space to include diverse activities and researched and developed a new automated sports equipment checkout system, called **Park Activities Locker System (PALS)**, specifically targeted for Cupertino's flagship Memorial Park in the heart of the Silicon Valley. Memorial Park's dried-up artificial ponds dominate the park but have been empty since the last drought. Instead of filling them up or replacing them, the children drafted a space utilization plan including concrete ping-pong tables, game areas, a pickle ball court, an advanced play structure, and a reading library. The **PALS** will encourage spontaneous park visitation, and allow people to try new activities. It's integrated with the local library system so that it is free. The equipment locker design considers materials, power supply, placement, and content. **PALS** can improve parks everywhere. The children consulted and interviewed multiple experts, senior city planners, park and recreation officials, city librarians including Cupertino Unified School District Superintendent, Dr. Baker, City Councilmember Liang Chao, Councilmember Jon Willey and presented the solution at the Cupertino Roundtable with Vice Mayor Darcy Paul, and the Cupertino Parks & Recreation Commission's televised monthly meeting with Mr. Randy Schwartz and the commissioners.



(L to R) Ryan, Nathan, Aaron, Mr. Randy Schwartz, Cupertino Parks & Recreation Commission, Jason, and Naoka



(L to R) Ryan, Aaron, Jason, Vice Mayor Darcy Paul, Naoka, Nathan

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The children took turn asking for project feedback at a City of Cupertino and Cupertino Unified School District partnership meeting with Dr. Baker, senior staff, school board members, City Councilmember Liang Chao and City Councilmember Jon Willey.



The public space the children identified is Memorial Park, a 28-acre park located in Cupertino. It includes acres of lawn, a gazebo overlooking a dried artificial pond (which used to be filled), an amphitheater, a lighted softball field, and six lighted tennis courts. It is centrally located, adjacent to a senior center, Quinlan Community Center, and Cupertino Sports Center. There is also a reservable picnic/barbecue area. Memorial Park also houses Cupertino Veterans Memorial, which honors our local veterans. The children wanted to identify a problem in a public space or building in Cupertino community, and come up with an innovative solution for the problem. The children identified this problem with Memorial Park's ponds while going on a field trip to various public places in our community and pointed out improvement ideas in these public spaces.

The children identified 3 issues in Memorial Park:

1. The space in Memorial Park is underutilized because of the unused empty pond space. The ponds have been empty since the big drought in 2014. The city cannot refill the pond because the water pipes that supply the pond no longer work. The ponds also attract geese, and their droppings pollute the park and make it unattractive.
2. The activities that currently exist in the park don't appeal to a wide demographic. Having only tennis courts and a softball field limit the recreational activities that residents may enjoy in the park.
3. The lack of equipment for the sports activities in the park may also limit people's ability to utilize and enjoy the space.

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Improvement:

The first part of the park improvement is to convert the dried-up artificial pond into activity areas. As mentioned earlier, Memorial Park has acres of empty ponds that are currently off-limits and wasted space.

The City of Cupertino is in the process of evaluating how to improve Memorial Park. The city is considering reducing the size of the artificial pond, tearing out the rest of the pond and putting in grass. Given the ongoing efforts to decrease water use, and because the pipes that supplied the pond need to be replaced, the children believe that keeping a pond is not the best use of our tax dollars. The water feature will continue to attract geese, which leave droppings all over the park, and no one wants to play on grass that is covered with geese droppings or have to walk or bike on paths that are covered with geese droppings. In addition, tearing out the pond and the pipes will cost over \$1,000,000, according to the director of parks and recreation for the city.

To avoid this cost of tearing out the concrete, the children's proposal is to take advantage of the concrete and place recreational activities in the existing pond space such as ping pong tables, foosball tables, cornhole, game tables (e.g., chess, checkers), skateboard park, and mini-golf course, to name a few options. The pond space is very expansive, covering acres of space, so the children have a unique opportunity to install a lot of recreational activities. Right now, the park is empty most of the time, greatly under-utilized given how much space it occupies. The children want to incorporate activities that can be enjoyed by teenagers, adults and seniors, to attract more individuals to use the park. Currently, there is no activity within the park that cater to the needs of teenagers and adults, or even mobility impaired individuals, and the children want to include options for everyone to enjoy at the park.

The children's plan is to add activities such as ping pong tables and pickleball courts to this space. The children have short-term and long-term solutions. The short-term solutions that the children will include: ping pong tables, cornhole (bean bag) stations, a little library reading area, game tables (e.g., chess, checkers), and foosball tables. These short-term solutions will be made out of concrete and secured into place. They are short-term solutions because they are readily available for purchase immediately and are also relatively relocatable if the city's long-range plan for the park changes. The long-term solutions include: a skateboard park, an advanced playground catered to teenagers, exercise stations, wall ball courts, pickleball courts, and bocce ball courts. These long-term solutions will take more time to implement and are not planned for relocatability. In sum, converting the dried-up pond into activity areas will eliminate wasted space and increase the usage of Memorial Park by people of all ages.

Since the children's proposal is to install activity stations outdoors, the best material will be concrete because it is weather-proof and low-maintenance. It is also heavy and can be fixed to a particular spot so it cannot be easily stolen. During the children's research, they found images of the types of activity stations that they proposed in concrete, and companies that sell them, so the children know that they can be built. When they met with the San Jose Parks Manager

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and the Interim Director of the Cupertino Parks and Recreation Department, they provided the children with estimated costs for some of the activities based on their experience in purchasing and installing them. The children estimate the total cost to implement their solution will be around \$1,000,000.

Picture below: The dried-up artificial pond in Memorial Park



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Picture below: A model of the newly designed activity area



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Park Activities Locker System (PALS)

To complement the children's solution of installing the recreational activities that all age groups can enjoy, the children also propose installing sports equipment lockers, **Park Activities Locker System (PALS)**, to supply the equipment for these activities. The children want to encourage everyone to try a new sport and exercise more, without having to spend money. The children want to be mindful of those who are less affluent and may not be able to afford the sports equipment, or who are not ready to invest money in the equipment. If someone has never played ping pong, for example, s/he would not own the paddle and balls, or would not want to buy them just to try it out. The children propose having equipment available in a locker for people to borrow and use at the park. As previously described, **PALS** will be tied into the library system, so a person would borrow the equipment just like s/he would borrow a book at the Santa Clara library system. Having the locker at the park next to the recreational activities will allow someone to come to the park empty handed, have fun, and enjoy the public space. The children have not seen a public space that offers the variety of activities that the children are proposing, which they believe will greatly benefit all who visit Memorial Park.

The **PALS** doors will be clear so people can see what sports equipment is available and if the equipment is in good condition, so they can choose usable and available equipment. From speaking with park managers, the children understand that park staff visits each park on a weekly or more frequent basis, so damaged equipment can be repaired or replaced on a regular basis. Even though there's electrical power available at the park to connect the locker to operate the checkout system, the locker can be solar powered and include a battery for back-up. The children spoke with the Cupertino Librarian, and she stated that the library checkout software system can be custom tailored to specify that the sports equipment can be borrowed for a maximum of 4-5 hours (instead of days like books) to track if they are timely returned. If equipment is not returned, then like unreturned library materials, the borrower's library account is noted, and fines applied for late return. Similarly, if the item is not returned and the fine remains outstanding, then the library card holder cannot borrow any materials at the library or from the equipment locker.

From the children's interviews with Amazon and Federal Express which both have implemented outdoor metal lockers that are weatherproof for package pickup, the children would use similar lockers for **PALS**. The clear doors of the lockers can be made of polycarbonate plastic because they are impact and weather resistant. Also, the locker doors will be like the Amazon locker doors - they won't have handles or hinges on the outside, and they will only open if somebody is checking out or returning equipment. This design will make it harder for vandals to break into the lockers. Based on the children's discussion with Amazon, there has been no theft concerns with its locker system. All the experts the children spoke with expressed their belief that even if there is loss due to damaged or unreturned equipment, the cost of the equipment is quite low, and the benefit to the residents outweighs the cost. The city can budget appropriately for the damage and loss, as it would with any other library materials.

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Picture below: A model of the PALS, Park Activities Locker System



2. Define how your nominee demonstrated outstanding individual work performance, team work, or work effort in the area of technology.

The five children demonstrated outstanding individual and team work performance and work effort in the development of technology. Below are what the children have to say about how they define their performance and technology in five areas, discovery in technology, innovation, impact, inclusion and teamwork in the project.

“Discovery in technology: *We explore new skills and ideas.*

- *In the beginning, We searched everywhere for an idea to give us inspiration, and then decided to bike around our community. While biking, we found many problems we thought needed fixing in our community. We made a list of ideas and researched everyone of them and interviewed many experts to gain feedback on which ones were the best and most plausible.*
- *We wanted to use lockers like the Amazon lockers to store sports equipment at Memorial Park. We interviewed experts in library check out system and locker system and we discovered our idea is possible.*
- *If we always stick to the same things, we can never improve. Learning a new skill is like adding a new tool to your toolbox. We face new problems every day, and many times we need to find new ways to solve them.*

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Innovation: We use creativity and persistence to solve problems.

- *The ponds have been empty since the big drought in 2014. The city cannot refill the pond because the water pipes no longer work.*
- *Our locker solution had many problems, we couldn't figure out how the sports equipment would be checked out, so we brainstormed ideas and scheduled interviews with library related tech experts. We found a solution but then realized that the metal used for our locker interferes with the checkout technology. We then researched more and found a different kind of metal.*

Impact: We apply what we learn to improve our world.

- *Our project is focusing on improving Memorial Park for people to enjoy the park more.*
- *Many people don't have much motivation to go to parks because there's limited activities offered. Our solution will be impactful to our community because it will encourage people to go out more and get exercise.*

Inclusion: We respect each other and embrace our differences.

- *Not everybody thinks the same way, as the mindset differences between men and women. If we only have males, or only have females, not as much can happen as opposed to having a mix. You can think of it as a rainbow. A reason a rainbow looks nice can be the fact it has not just 1 color, but multiple.*
- *We wanted people who cannot afford to buy sports equipment be able to check them out just like how we check out books at the library.*
- *During our interviews with City of Cupertino and school district staff in the project, they are very supportive about our project, and they treat us like responsible adults and give us feedback. We're glad the local government values inclusion, otherwise our proposal wouldn't have gotten anywhere.*

Teamwork: We are stronger when we work together.

- *The team had to do a lot of research for the project, and without great teamwork, we wouldn't have made it this far.*
- *We respect each other and work better together. We can solve harder problems as a team. Each of us is different, and it's our differences that help us solve problems. Using our differences, we can combine efforts in overcoming problems that we face as a team. As a team, we always encourage and include others. We make sure everyone gets the same opportunities, and we all learn together to better our team"*

I cannot agree more with the children. The children worked very well and learned together through mistakes. When they discovered something did not work, they learned their lessons with growth mindset and moved on with improved skills each time. They collaborated on

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problem solving, researched and outreached for resources they did not have or concepts they did not understand. These five 7th grade Cupertino children continue to amaze me and the adults around them by how humble they are, yet they are very creative, caring, fun loving, and inquisitive about the community they live in.

3. How has your nominee created a culture of innovation through leadership, engagement, and/or collaboration?

Innovation through Leadership:

The approach these five 7th grade children took to develop the solution is to (1) research and brainstorm, (2) share their solutions with leaders, experts and the community to obtain feedback, (3) incorporate feedback from community, further research and modify the solution, and repeat steps (2) and (3). During the children's weekly project meetings, the children took turn to lead discussions on topics they identified as problems with Memorial Park and brainstormed all options for the problems, considering the needs of different age groups who may visit the park. They developed sets of different interview questions used during different interviews with different community members. They always had innovative and creative ideas and big questions for the experts.

Innovation through Engagement and Collaboration:

Traditionally, as is with Memorial Park, parks have playgrounds targeted towards young children. The children wanted to make sure that seniors, adults, and teenagers would have fun activities to do at the park as well. The children reviewed the master plan that the city recently completed for its parks to understand what the city viewed as issues that should be addressed, to make sure that they took into consideration what the city has identified as problems so they can develop solutions. The children interviewed a senior city planner and the director of parks and recreation for Cupertino to understand what options the city is exploring to improve Memorial Park and what may be acceptable to the city as improvements for Memorial Park. They biked around other parks in the city and visited parks in the neighboring city of San Jose, Menlo Park and Palo Alto to gather ideas on what different activities are available at parks of different sizes and locations. The children participated at a strategic partnership meeting between the City of Cupertino council members and the Cupertino Union School District Superintendent, board members, and senior staff to get feedback on their initial ideas, so they can refine and improve their ideas. They then met with the Parks Manager for San Jose because some of the parks in San Jose have activities that Cupertino has not implemented, which they thought would appeal to visitors to Memorial Park. They then attended the City of Cupertino Roundtable with then City Councilmember, now Vice Mayor Darcy Paul and local residents to present their solution and obtain additional feedback to further refine the solutions. After incorporating all the feedback from various experts and the community, the children met with the Interim Director of Cupertino Parks and Recreation Department to share their solution to obtain additional feedback. Once they finalized their solution, the children presented it to the Cupertino Parks and Recreation Commission, so the children's solution

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would be considered as the city moves to finalize plans on how to improve Memorial Park.

For the **PALS, Park Activities Locker System**, activity locker portion of the solution, the children spoke with the IT Manager for the San Jose Public Library to understand how the city implemented check out system for items that aren't traditional library materials, and children obtained feedback on how to make their locker system work. The children also spoke with Amazon locker to understand how it implemented its locker system. Then the children met with the community librarian for the Cupertino Library to share their idea and learn what the library would consider adopting and implementing. Their solution to improve Memorial Park by installing recreational activities requires the Cupertino City Council to adopt their proposal and allocate a portion of the city's budget to fund the improvement. The children started this process by presenting their solution to the Parks and Recreation Commission, city planners, and other Cupertino residents which was well received and drew a lot of interest.

Cupertino is currently in the planning phase of a master plan for all parks and the children are excited to be able to influence their direction. The children often felt welcomed and excited after attending meetings to share their ideas and receive feedback. The adults in the various city departments and school district have been very welcoming to the children's ideas and they acknowledge their work and contribution to their community. The feedback from the adults has been great motivation and encouragement for these five young city residents to continue to stay creative and come up with innovative ideas as they are feeling a greater sense of city ownership and responsibility.

From the beginning of the project to where the children are today, they have continued to demonstrate their growth in understanding the importance of collaboration, and that innovation cannot happen alone without teamwork, partnership, engagement and leadership. It has been a great experience to witness the children's growth and I would like to see more young city residents to take on extra steps for the City of Cupertino and stay innovative in the heart of the Silicon Valley. These five innovators of **PALS** are role models for other children and they are looking forward to bringing this project to the next steps with support from the City of Cupertino and the many city departments, schools, and staff. Lastly, I want to say, *"Thank you very much for your time and consideration!"*



The Innovators: Nathan, Naoka, Aaron, Jason, Ryan, Extra Steps Taken!