

PIONEERING A PLACE FOR ECOLOGY

A school teacher's dream in 1971 led to this pioneering green project where nature is the teacher—decades ahead of its time. Now Santa Clara Valley possesses a model ecological environment in the form of an Outdoor Classroom that will continue to inspire school children and environmentalists for a new millennium. Hacienda Environmental Science Magnet School at Valley View is located at 1290 Kimberly Drive, San Jose, CA 95118.

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Today

Today the Outdoor Classroom (OC) replicates the various Santa Clara County biomes. The OC is a preserve of indigenous plants. In it one can smell the moist redwoods, the pungent Bay Laurel, and the aromatic chaparral. There are insects crawling and birds nesting and small animals scurrying. This is a gathering place for students, teachers, parents and naturalists—a place to focus and observe in solitude, or join in with others and explore in the excitement of discovery. Maria Montessori once said, “I don’t need four walls to make a classroom.”

To give a clear account of how this place came to be, I will have to return to 1971 when Edith Young, a teacher who was driven by her wonder at the intricacy and variety of growing plants and trees, first had her simple idea. What was then Valley View Elementary School, in an area south of Willow Glen, had a back acre at the corner at of Vistamont and Rodney Drive. This large back corner of the school was unfenced, unused, flat, dry, and unremarkable. Edy had an idea that had taken root and grown from thinking about vacant lot biology. That idea had grown into something more. Her dream was to build an outdoor classroom on the school grounds where students could study ecology and learn about nature; especially, Edy wanted that area to include all the different biomes of Santa Clara Valley and the surrounding mountains: the redwood forest, oak tree woodlands, riparian pond and stream lands, the chaparral, and grasslands. As it turned out the brightness of her dream was only exceeded by its complexity.

The original idea was a dream shared by two people and spearheaded by three. Edy Young arrived at Valley View Elementary to teach third grade in 1971. She had already thought of planning an outdoor classroom to teach ecology. Meanwhile Fayedene Horder, at that same school, had been sent to a Science Conference at San Jose State and returned fired up about ecology. Edy and Fayedene wanted to teach school children natural science in the out of doors.

Implementing the Idea

Fred Ross was the principal at Valley View. He was an experienced educator with a background in science education who had become the unofficial “guru” and adviser of the San Jose Unified School District's elementary science program. He had instigated many cutting edge programs that were put in place. Edy's husband, Joe Young, was a professor of Biology at San Jose State. This trio, Edy Young, Fred Ross and Joe Young, was the source of ideas that would transform the school's campus and science program into an exemplary elementary school experience for children.

Fred Ross immediately recognized the value of an Outdoor Classroom and supported it. He was a strong mentor and worked collaboratively. He espoused the Socratic Method and asked good questions: What can we do now without any funding? Where can we get assistance? What will we tell parents who want to help? How can we start with what is available; and how will we keep things safe for the children?

Edy chose the unused corner at the back of the school as a logical spot to start. Fred gave her permission to start a hose running on slow drip to “get something growing that the students could study.” She took the children in her class outside and began to show them that ecology means noticing the relationship of living things to each other. “What do you see?” she asked. And they found aphids on a mallow plant. “It looks like the aphids are eating the mallow plant,

what eats aphids?” And suddenly the children found a lady bug close by, nibbling on an aphid. Edy had the students measure and draw a map of the area, and identify and graph the number of each plant type. They planted wild flowers from seed and then mounted the wildflowers when they were grown.

This teacher didn’t lose any time while she waited for what she really wanted: a designated area, planted with the different biomes. Edy drew up a plan and made the calculation that one acre of land would be sufficient to construct her project, then wrote a list of what was needed from her experience teaching outdoor science. The school staff was enthusiastic and teachers volunteered to do a brief teaching of the biomes, introduce a map of the proposed site, then let the children draw and write in what they thought should be there. Students came up with specific trees and plants and a place to plant vegetables; and, most of all, they wanted a pond and stream for frogs and fish and water bugs—a riparian area. These ideas were the basis for the original plan which remains much the same today.

Meeting the Board’s Terms

The day came for the formal presentation to the San Jose Unified School District Board. Edy had formulated a detailed proposal for the Outdoor Classroom. Most of the Board liked the idea; but the Superintendent of Building and Grounds was cautious and overly wary. From his point of view, “The project will be a safety hazard; maintenance and upkeep will be a nightmare; insurance is a problem; and there will be extra cost for the gardeners.”

In spite of that objection, Board approval came because the district superintendent and several board members were familiar with Fred Ross’s excellent reputation. The proposal for the Outdoor Classroom was passed and approved. Yet, this was met with vigorous opposition from the District Superintendent of Buildings and Grounds who, justifiably, had concerns about cost,

maintenance, and liability with the proposed pond. He insisted that no school gardeners or school staff would be used for the installation or maintenance of the new environmental center.

Moreover, it would not receive funds beyond that which any other school would receive. In addition, a chain link fence would be required around the entire two-thirds of an acre site and the district would not pay for the fence. The Science Program proponents had won approval of the concept but were clearly up against an adversary in high office. It was immediately made clear that any OC volunteers would not be allowed to use the school's tools or equipment; and a closed bathroom where these implements were kept was never cleaned by a school custodian.

Starting in Earnest

Edy and the others fell to the task of building. This was an auspicious time to start the conversion of the school's back corner into the Outdoor Classroom. Valley View Elementary, located in what was then, the southern outreaches of San Jose, was in an area just being developed. This borderland, once covered in orchards and farm land, was being cleared for housing; and everyday there were trucks nearby scraping up dirt to make way for new tract houses and new roads.

Edy and several parents contacted a number of construction companies; one hundred and fifty pickup truck – loads of top soil were delivered to the site. A parent and student group gathered at the school and built a low wide hill across the northern section of the OC to set the boundary of the area. Request letters were sent to the forest service which sent six redwood trees, three oaks, and about ten Monterey Pines. Edy called people to raise money and she began her long history of writing grants for the OC. She bought a hose, turned on a trickle of water to run slowly in one spot to form a riparian area. Wild flower seeds were planted in what would be a meadow beside the watered area.

Edy's husband, Joe Young, designed a sprinkler system and approached local companies for donations of pipe and sprinkler heads. Edy persuaded Pacific Gas and Electric to supply a trench digger and a driver, and they installed trenches for the irrigation pipes. Several contractors donated bulldozers and drivers, too, in order to build hills in what was going to be the redwood forest, oak woodland and chaparral area. They also excavated two ponds: one that would be in the shade of the redwood trees (the original redwood trees were only three feet tall), and another that would be in a low sunny meadow. A stream bed was dug out connecting the two ponds.

The phone company donated a post-hole digger and operator to dig holes for the trees and later for the fence posts. Even with this equipment, the area still had to be soaked overnight. The clay subsoil was solidly resistant to drill. PTA parents and their children came for the first of many work days. Even though the full scale of what they were getting into was difficult to grasp they were eager to have a part in building the Outdoor Classroom. They brought rakes, shovels and pickaxes and broke up clods, spread and smoothed soil, and mounded and shaped the hills. School parents have been dedicated from the start and deeply involved with the O C. Today they volunteer on work days as the Hacienda Involved Parents and Staff (HIPS).

The Challenge

There was a rash of thievery and vandalism. Before the acre was fully fenced, people came in and took the new sprinkler heads again and again; they dug up and took many of the new plants. There was no fence around the OC perimeter. Fred Ross proposed using an unnecessary chain-link fence at the front of the school. If Edy could come up with a way to move it, she could use it to enclose the OC. Parents turned out with heavy work gloves and stripped the front lawn chain link fence from the posts; and contractors, among school parents, lent a fork lift to pull the concrete weighted posts out of the ground and move them to the new location. Again

they called the Telephone Company to dig big postholes. But even with the fencing, someone stole plants and broke the sprinkler heads to make “gushes”.

Despite the setbacks, little by little, the Outdoor Classroom took shape. Enthusiastic parent volunteers and a few of the students and Edy, increased the height of the hill in the middle of the acre. This area was designated the Chaparral. The children loved running up and down the hill. Garden nurseries nearby were persuaded to donate a mountain mahogany, a coffee berry bush, California buckeye, California wild lilac, a Manzanita shrub and a Toyon for the Chaparral. They had a good start on the Redwoods, the Oak Tree Woodlands, and the Chaparral biomes.

Edy Young, Resource Teacher

California State, in a money-saving effort, allowed schools to replace vice-principals with Resource Teachers who were paid less and were on a teacher's salary schedule. They were to teach half time, and have additional supportive but non-administrative duties. Valley View School staff would ask their Resource Teacher to teach the gifted program and also take on the science education classes. Edy Young was hired because she was an experienced teacher, had classroom experience teaching science discovery and using vacant lots for teaching examples. This arrangement freed her to work with parents and the larger community. It gave her time for introducing new plants to the outdoor classroom and continuing plans for the project.

For a while, San Jose Unified School District was awarding grants of one thousand dollars to fund an individual teacher's project. It was Edy's second year at Valley View; she wrote for a matching grant, (the PTA raised \$1,000 for the Science Project,) explaining the benefits of, and requesting funds for building ponds in the OC. She submitted the proposal. At the end of the year it was approved by the Board of Education and paid for bags of concrete, wire

mesh for reinforcement, and the purchase of hoses, rakes, and wheelbarrows.

The students planted wild flowers in the fall and waited for spring. At the end of 1974 Edy took leave to accompany her husband on a sabbatical from his position at San Jose State.

First Transition

At the end of June, Edy was leaving, but she was working to complete the pond and introduce Carolyn Flanagan to the project. Volunteers refined the stream and marsh area. The parent group brought shovels, rakes, wheelbarrows and a cement mixer. They laid pipes for the pump and recirculation system, and wire mesh and rebar for the shallow ponds, in preparation for the concrete that would be poured to line the ponds, waterfall and stream bed. Carolyn and her husband Dan, and Edy and Joe, gathered hand-sized river pebbles to embed in the stream. The 100 degree temperature that day was not the best time to lay concrete, but the team was persistent and the work was completed.

Carolyn had joined the staff as the new Science Resource Teacher and would carry on the hard work Edy had begun. And for years afterward the ponds would have a small leak problem and need to be topped off with fresh water.

The expense of the “extra water” worried the Central Office until it was compared (favorably) to the water bill for other schools of similar size. Their lawns used more water than that leaked from the ponds. On the other hand, the water leak was beneficial for the Riparian trees that grew alongside the ponds and stream. This was a very good start to Edy’s idea.

The Baton is Passed

Carolyn saw the large picture of the Outdoor Classroom from the start. She jumped into

the whole concept with both feet, and she made things happen. Edy had carefully passed on the baton. One thing continued to be a challenge when Carolyn began at Valley View: vandalism. In 1974 the PTA got logs to line paths. Neighborhood kids rolled the logs into the pond at night, and Carolyn had to get students to help get the logs out of the water in the morning—there was no help from school staff. Carolyn Flanagan camped out at Hallowe'en to guard the acre.

The designers of the project now submitted a petition to have a chain link fence installed with a line of barbed wire at the top. This was denied by the Superintendent of Buildings and Grounds because, they said, “someone might get hurt on the barbs.” The parent group planted pyracantha just outside the fence for a barrier and Oregon grape inside to make a wide prickly barrier to discourage fence climbers.

Carolyn Flanagan, Resource Teacher

During Carolyn's first years at Valley View, using funds raised, she purchased and placed most of the native plant biomes, and developed many outdoor classroom lessons. She organized fund-raising activities, and work parties for cementing the water fall, marsh areas and stream, for digging paths close to the ponds, and sweeping out the ponds so they could be sealed. And she saw to it that the children had the opportunity to see such interesting creatures as adult and nymph harlequin bugs, huge mantises and lizards. She added ten redwoods on the west side of the OC to increase shade so small redwood forest plants would grow. The children planted alders and a sycamore to increase the streamside shade. They also replaced a number of Oregon grapes that did not make it through the previous summer. All the classes participated in the planting. On Arbor Day, Cub Den #2 and Boy Scout Pack 295 planted four Chaparral plants; a Toyon, a coffee berry and two Manzanitas. Students help build the Outdoor Classroom.

Carolyn asked, in a 1975 Outdoor Classroom newsletter, “Have your children been

alking about such creatures as daphnia and scuds? These are among the many small creatures at now inhabit our ponds and which the children have found and observed under a microscope. They have been able to see several stages of various insect life cycles as well. Besides studying pond life, the students have been observing seasonal changes in plants.” She published newsletters to parents all through the year to update the progress in the Outdoor Classroom.

Mrs. Horder’s second grade class planted the following in the redwood forest: four evergreen huckleberries, two western azaleas, two wax myrtles, four Douglas irises, and one live oak. Chaparral plants were purchased from California Native Plant Society and Mrs. McIntyre’s fifth grade class planted them: a pitcher sage, a chaparral current, two silk tassel shrubs, a snowberry, a chaparral pea, a buck brush, a blue elderberry, four Manzanitas, and a coyote bush. Carolyn’s crew cleared the small pond. They moved all the native fish to the large pond: Pumpkinseed, sunfish, bluegills, California golden shiners, silversides and mosquito fish.

That same year she introduced a number of frog eggs into ponds. Carolyn planned the acquisition of biome plants, and stocked the ponds with the native mosquito fish, (*Gambusia*). Students got to release a small number of tree frogs, seven newts, fifteen slender salamanders, axolotls and crayfish. The programs were expanding. The outdoor classroom was in full use. In 1976 Carolyn added more plants to the Chaparral: Manzanita, coffee berry sagebrush, Toyon, huckleberry, black walnut, salal, coltsfoot, spice bush, ceanothus, chamise, sticky monkey flower, Douglas iris, and lady fern. She had the primary grades study the banana slug, a blue-spotted lizard, crayfish. She and the students sat on the banks of the pond and studied the habitat and habits of mallard ducks. They discovered a mother duck and her ducklings just hatched. They watched two competing ducks swoop overhead from one end of the OC to the other.

Carolyn continued at this pace for three years; then she took maternity leave.

The district ended the program. The site became neglected. There was little perceived value of the Outdoor Classroom. Only a few Valley View teachers used it for their lessons. And during this same time, Edy retired. Basically, the Outdoor Classroom was abandoned.

Lost Years: 1978 - 1981 at Valley View

In the summer of 1978, after San Jose Unified School District no longer funded the Natural Science Program and had ended the Science Program at Valley View Elementary, the Outdoor Classroom sustained a near-fatal wound. Older kids who used the fence-in garden for a secret meeting place soaked two tennis balls in gasoline, threw them into the Chaparral, and set fire to the OC. The Chaparral and all the donated Monterey Pines went up in flames; a neighbor's roof began to burn; the fire department came. They put the fire out; but that was enough. The School District's Superintendent of Buildings and Grounds sent out an immediate order. The debris was removed, and what was left of the Chaparral was bulldozed—leveled. The pyracantha on the fence at Rodney and Vistamont Drive was pruned to make it see-through. Without any consultation, half of the OC was eliminated in one fell swoop. Valley View Elementary School closed the OC and locked the gate.

The Secret Garden

Three years went by. John Park, who had been teaching at nearby Reed Elementary School, was laid off when schools were closing down and consolidating. Then he was hired back, this time at Valley View Elementary to teach the 5th grade. Cliff Gough was principal at the time. After a few months, knowing that John had a B.A. in Natural Science, he commented one day, "By the way, we have an Outdoor Classroom. I'll show it to you." And he took John back to show him what remained inside the locked fence.

John Park says, “When I first opened the OC gate, it was like walking in to the *Secret Garden* for the first time. Everything was wild and tangled, overgrown and unattended. The redwood trees grew on the small slope at the north end of the acre. There were a few oaks towards the middle, some alders and a young willow tree at the edge of the two ponds. The ponds were there covered with fallen leaves. Clumped grasses spiked up everywhere. He found three sprinkler heads in the interior. And toward the south end a natural Chaparral had grown back unattended.

Exploring further he found that the tiny pump for the pond was clogged with the claws from the abundant crayfish. He decided to work on clearing that out. There didn’t seem to be any filtration system, and the two ponds were filled with sludge and plant material. There was a swarm of tiny fish in the pond.

He made an excursion to talk with a City worker who could tell him what to do about the ponds. The man came out and discovered that the Valley View School ponds had an abundance of tiny *Gambusia* fish. The man was, among other things, in charge of Vector Control and immediately asked the Valley View School if he could use the pond as a resource for the fish to supply other ponds in the city that needed them. It turns out that the native *Gambusia affinis* is a very effective fresh-water mosquito – control fish. Carolyn Flanagan had stocked the tiny fish for that very purpose.

John took his class into the Outdoor Classroom and said to the students, “Let’s hunt for stuff.” The children stood there and looked at the trees and then they saw the ponds. On the way to the ponds they found fox tails and wild mustard, insects and spiders, even a frog. John taught about them. He was a natural science teacher and eager to use the OC as a teaching tool. They talked about how foxtails got caught on roving animals and were spread to other areas as

opposed to dandelions which got blown from place to place. They talked about what wild mustard did for the soil and what kind of bugs and animals it fed. They talked about the hiding places of bugs and how some burrowed through the soil, and about the living spaces of frogs and what they ate. They made a food chain chart of everything they found.

The three remaining sprinkler heads gave John an idea; he divided the ground into three pie-shaped areas for the students to use as a garden. "What do you want to plant?" he asked. "What do you want to grow?" The children were most enthusiastic about growing carrots and radishes. They planted the seeds in the soil that was there. When time came to harvest their crop, the carrots were pretty scrawny, a little underdeveloped, but it was a fine start. The Outdoor Classroom was in use again.

A Different Transition

Two unexpected issues loomed up in the school District. One was the reduced population of students in the area. Selected schools were scheduled to close and Valley View was one of them. The other issue was the newly realized problem of ethnic imbalance in the schools. The school district thought this could best be solved if they fostered a Magnet School Program.

This is where Hacienda Elementary School, located on McKean Road in the Almaden Valley entered the picture. John Berney, the new principal there had been a charismatic science teacher before he came to Hacienda, and since the school was located out in the country near a stream, the School Board thought that would be a perfect place for the start of their new Magnet.

Establishing the Science Magnet

The Science Magnet was a good idea, but from the start there were snags in the details. One was the amount of time it took to teach special science. Edy Young came back from her

leave and started work at the Almaden Hacienda Science Magnet as a Resource Teacher. She was one of the teachers selected to help write the charter for the Science Magnet. Fred Ross was on the committee also. The agreement was that science would be taught by the classroom teacher every day for thirty minutes. In order to keep that schedule and still meet mandated hours per day or week for all the other subjects and activities, the plan was adopted to extend each day for thirty minutes. Enough teachers wanted an opportunity to start an innovative Science Magnet and were motivated to volunteer the extra thirty minutes with no increase in pay. There was a complaint made to the San Jose Teacher's Association. It became involved and took the position that this group of teachers could not make a separate contract agreement for the extended day without extra pay. That agreement would jeopardize the work of teachers' unions throughout the state and open teachers to coercion toward accepting changes which amounted to a lower pay per hour than had been agreed upon under contract.

A compromise was decided. The day would be extended for twenty minutes and other "release time" teachers would be hired to work one hundred minutes weekly for the science teachers.

That first year, Edy Young as the Science Resource Teacher, had to relieve John Berney of some of the routine work so that he could recruit and organize the new school. She was to teach some primary science classes, plan a science lab suitable for elementary school children, and plan a way to use the McKean site for outdoor science education. She took a walk to scout out the stream and got a shock. In order to get students to the nearby stream for science projects, they had to cross a busy road; but of greater concern, the stream, in a derelict area, had dead animals in it, broken glass, poison oak and discarded auto bodies. This was a hazardous place.

John Berney, who believed in the science magnet program, talked to parents in the north

part of town about the mission of the Science Magnet, the importance of science for a fulfilling life and as a career choice. He was told the Magnet School was too far away. Inner-city parents wouldn't let their children be bussed that far. The Science Magnet location was a poor choice:

Edy and others (including Carolyn Flanagan) saw and seized the opportunity to have the Valley View Elementary School, with its existing outdoor classroom, be the new site for the Science Magnet. The District Office administrator and many community members became convinced that Valley View had the facility for teaching environmental science; and its placement at the center of the District was practical with respect to bussing and integration.

A New Name

To appease the Hacienda community for their loss, it was decided to keep the Hacienda name. After all, the McKean road Hacienda School had adopted that name from the New Almaden Hacienda Schoolhouse built in the late 1800's. This had been a two teacher school house for the children of the quicksilver miners and a small number children from nearby ranches. That school house had been located near the historical Casa Grande.

The proposed name change upset the Valley View parents and staff. And thus as a compromise to honor both names San Jose School District chose the new protracted name: The Hacienda Environmental Science Magnet School at Valley View. (Now it is Hacienda Environmental Science Magnet School.) The compromise worked. The Magnet School, in its new location, reopened in 1982 with John Berney as Principal.

The teaching staff was selected for their strength in science education; and with John's enthusiasm and direction, they supported each other and shared in developing exciting individual and unit lessons in science. Many of the teachers at the previous Hacienda School on McKean Road were transferred to the new Magnet School, including Edy Young. Many of the former

Valley View teaching staff remained as well. The school enrolled students from all attendance areas of the district to help achieve desegregation.

During 1981—1982 Edy Young and the staff developed a sequential and developmental science curriculum to conform to State Standards. Edy worked at raising funds to refurbish lost or neglected plants. She also worked on increasing student's critical thinking skills. Edy worked constantly to inspire the children with the excitement and adventure of Outdoor Classroom discovery. They tracked down hidden plants and crawling insects. They noticed everything.

A Memorial

On Tuesday morning January 28, 1986, time had been set aside to watch the Challenger space launch. The children looked forward to hear a report from teacher astronaut Christa McAuley on what space flight was like and what she hoped to accomplish while in space. But seventy-three seconds after launch the Challenger booster rockets exploded. The children in Harriet Jakovina's class room watched in silence – stunned. The lesson would not go ahead as planned. Mrs. Jakovina gathered the class and they all went to the Outdoor Classroom. She had them gather material from the outdoor space: vines, flowers and beautiful leaves; and they created a wreath that they hung on the gate of the OC.

Carolyn Returns as Science Resource Teacher

Carolyn Flanagan took over again in 1988 and organized the different grades so that each class got a chance to use the OC space. Up to this point there was no coordination to integrate classroom science instruction with the Outdoor Classroom program; teachers taught whatever interested them, using the ecology reference books in the school's collection. Carolyn directed a new way to use the OC. She allotted one specific community to each grade level; and by the time

all six grade levels were completed, students had a comprehensive picture of where they lived.

Kindergarteners study the pine forest because there is just one pine tree in the OC, the Coulter Pine. It grows in the east foothills of Santa Clara Valley in the Diablo Mountain Range and has the heaviest pine cone in the world. The kindergarten children are joyous when they discover a cone and pick it up.

The first grade is assigned the Oak Woodland. This is because first graders love to gather acorns and play with them. The OC has two Oak species, an evergreen Coast Live Oak, with dark green, stiff, spiny, leathery, almost round leaves. It is found in most of the foothills. The other is the deciduous Valley Oak with thin, light green, deeply lobed, oblong leaves. It grows mostly on the valley floor in oak savannas and along the streams. Comparing and contrasting these trees through the seasons provides a memorable way to understand the concept of a deciduous, compared with an evergreen, way of life.

Grade two has the Redwood Forest, from the slopes of the Santa Cruz Mountains to the west. They learn how this biome survives with more water than we naturally have in San Jose, and how difficult it is to grow redwood trees of this ecosystem here. They compare the biome's two conifers, the Coast Redwood with the Douglas fir, as well as the Coast Redwood to the Giant Sequoia and the Dawn Redwood. These trees all grow on the school campus.

The Valley Grasslands, native to the floor of the Santa Clara Valley is the province of grade three because of the native people, the Ohlone, whom the third grade studies. These natives lived in the valley and along the streams. Students learn how to identify a grass; they compare and contrast different kinds of native bunch grasses. These students also plant and observe native wildflowers.

The Riparian Zone along the bank of our simulated Guadalupe River and the pond marsh

are the areas of concentration for grade four. Each student adopts a plant, observes and draws it in each season, and does research about his/her adoptee. Fourth graders are old enough to be safely spread out near the water.

The hot, dry Chaparral that usually grows on the west and south facing foothill slopes are assigned to grade five. They can easily understand the many, varied plant adaptations to these conditions and also are strong enough to dig in the hard soil to plant new plants. Fifth graders also adopt their own plant for study.

To help students remember information about their biome and to form a stronger connection with it, the music teacher, Kathy Hayes, along with classroom teachers Larry Hayes, Shannon Roberts and Carolyn, composed a song or chant for each one. The following is the song sung by the fourth graders about the Riparian Woodlands:

By The Stream One day Mr. Willow sat by the stream.
He was planning a party, a wonderful scheme,
So he asked the white alder, a tree that he knew,
To come up with a guest list, that he could review.
(Chorus) By the stream,
By the marvelous riparian biome,
By the stream, a riparian dream.
There were many trees and plants he had to ask.
It was quite a job, a real hard task.
He asked Mr. Maple, his big-leafed chum,
And Mr. Big Leaf Maple said that he would come. (Chorus)

The horsetail and the cattails got in line,
They said they thought the party sounded really fine.
Dogwood and the bee plant began to cheer,
They knew that Willow's party was drawing near. (Chorus)

Maple kept inviting all kinds of folks,
The sycamore, box elder, a couple of oaks.
Wild grape, gooseberry, poison oak too,
Bay laurel, sword and chain ferns two by two. (Chorus)

The party got started, it was really a blast.
The last plant there was the yellow-eyed grass.
Soon all the animals began to arrive
And the water-side fiesta jiggled and jived. (Chorus)

Ponds & Stream 1991-2

The ponds have always been the heart of the Outdoor Classroom. In 1991, San Jose Water Company, (Adopt – A School partner of Hacienda Magnet), who had installed a filtration system several years earlier, was called in to test the water in the ponds. Each year the pond fish and crayfish had to be captured and set aside, the ponds drained and mucked out, cleaned and refilled with fresh water, and the fish and crayfish returned to their habitat. The process wasn't working well. Randal Locke, an expert in aquatic environmental life was asked to assess the situation. The ponds needed help.

He said; "and you can either put a band aid on it or do it right."

After walking the paths of the Outdoor Classroom, the central value of the ponds became apparent and he considered how much science would be lost if they weren't functioning well. This man who had consulted for the Monterey Bay Aquarium and built tanks for the San Francisco Steinhart Aquarium now pondered what could be done in the Outdoor Classroom and he came up with a proposal.

The San Jose Water Company agreed the project should be done well, liked Locke's

proposal, and hired him to coordinate the reconstruction. Hacienda Involved Parents and Staff (HIPS) raised \$6,000; and a total of 3,000 man – hours were donated by business, industry, parents and school staff to bring life back to the OC. No tax dollars were spent for the rebuilding and upgrade of the 25,000 gallon capacity stream, ponds and marsh in the outdoor laboratory.

The two ponds were enlarged and lined with re-bar and concrete; the rock waterfall was rebuilt at the top of the high pond in the redwoods. Down at the inside edge of the lower pond, a stone wall was added next to the marsh land so that ducks might nest. Small circular islands were formed of concrete in both ponds so that if a child fell in there was something to grab. Later ducks nested in the grass on one of the islands.

Locke installed a 1,500-gallon settling tank to capture particulate matter for the ponds. And he installed a new flotation system that signaled when too much water was in the ponds (as in a winter rain storm), or too little water was in the ponds (as during the summer hot spells.) Water would automatically be added to the ponds during drought, and the sprinklers in the redwood forest would automatically go on to relieve the overflow when the ponds got too full. Locke figured the redesigned pond system would last for a good fifty years. Unfortunately the filter system never worked as planned and ponds would still have to be mucked out every other year. The east side of the OC was expanded and new sets of benches and lab tables with a shade cover to filter sunlight were built for the students.

Parent Julie Herbert, had a fence company and proposed to replace the fence. A higher fence was installed in 1991-92 without the objection of the San Jose School District. The fence was angled at the south-west corner; this was a safety feature for better traffic visibility. The north-east corner was moved away from the school building to deter climbers on the roof.

Ohlone Indian Projects

Each year the third grade studied the Ohlone, (Costanoan), Native Americans, who once occupied this area along the coast from San Francisco Bay through Monterey Bay to the lower Salinas Valley. The students learned how they fished and hunted and what they gathered to eat. And Resource Teacher Carolyn Flanagan would take the students with their clip boards and pencils and a “shopping list” into the Outdoor Classroom.

One Ohlone was going to make arrows and needed a bow to shoot game with. One was going fishing. Another had a little baby in need of diapers. Another was in pain. One wanted to make baskets, what was available? The people needed nuts to eat and meal to make little cakes with. One was framing a house. The students remembered what they had learned about plant properties and looked for what met these requirements. They recorded their conclusions in their notebooks.

At the Riparian streamside area they discussed and concluded that willow branches could be used to frame their houses, or to make bows; and that horsetails, which contain silica, could be used for smoothing arrow shafts. They learned that willow branches could be chewed for pain relief just as we might take an aspirin. They learned the Ohlone could make baskets from wild rose or big leaf maple or creek dogwood twigs. They were allowed to pick Douglas iris fibers to see that the fibers could be removed singly and used for weaving nets; they felt the cattail fluff used for diapers.

Students walked up the path to the Oak Woodland. There, the Ohlone used acorns from the oaks as their main source of food. Before eating it, they would grind the acorns into a meal then leach out the tannin by pouring water through it. The students got to do this back in the classroom. With parent help they made acorn pancakes. The Ohlone also ate pine nuts from such trees

as the Coulter pine, which has the heaviest pine cone in the world.

In the Chaparral when acorns were scarce, the Ohlone leached buckeye for eating.

Back in the classroom, the teachers selected materials and students used the different plants to make what was needed. They had a firsthand experience in history.

The most exciting project has been boat making. Each year the San Jose Water Company gathers a truckload of tules from the valley streams and brings them to Hacienda Science Magnet. The third graders must sort, straighten and lay them in piles. Then they thread long cattails through a wooden spoon with a hole in the handle, and weave the bundles of tule bulrushes together to form a boat. This good-sized boat floats because the tules are hollow. When the boat is completed the children tote it to the large upper pond in the OC, put on their orange life vests, and climb into the boat by twos to take turns paddling around the pond. While waiting their turns, students make models of small tule boats. Every third and second grade student gets a turn on the pond. By the end of the project the children know how the Ohlone Indians lived, what they ate, what they hunted and fished with, what they gathered for food and how they prepared it; and they each know how to use natural materials to make a boat that floats.

Hacienda's program of using natural objects in an outdoor setting for learning was proudly featured in the December 1991 issue of national science magazine, Omni. This article was about outstanding science curriculums; thus a local Santa Clara Valley project became a pioneering model for the future movement towards green and using outdoor spaces to teach.

Field Sketching Journal

Todd Fredrick, a teacher who had come to the Science Magnet from the Almaden Hacienda School, reflected on one of his inspirations. He said that when John Muir was exploring the Sierras, he recorded his observations by using a sketch journal. This involves

drawing things that you see, from tiny leaves to majestic mountains and recording your observations and experiences using descriptive writing. To teach this skill Todd brought all kinds of small objects into the classroom and placed them on each student's desk.

“There's a big difference,” he said, “between asking students to ‘Draw A Tree’ and ‘Draw This tree’.”

The students were advised that they did not have to be perfect, just as accurate as possible; they would improve in time. No self-judgment or judgment of other student's work was allowed. The non-judgmental attitude was constantly reinforced. This activity helped the student's to look very carefully at what they were drawing. Todd also included techniques of contour drawing, detail drawing, and even drawing the object without looking at their paper (which is a mind-hand skill). Then they were required to write a paragraph about what they drew. From this stage students went into the OC on many occasions and began the process of recording observations. Assignments to draw one tree branch, a small plant, a leaf or a rock in the pond helped students focus. There are "Educational Standards" involved in this which are related to eye-hand coordination, writing, and observation skills.

Map-Making skills

Todd used many techniques throughout the year to teach geography and cartography skills in map reading and map making. One involved the measurement and mapping of the OC. Students learned that maps are not like pictures. They learned topographical symbols, the use of grids (which is a math skill), and scale (another math skill), and directional indicators (the lines pointing North, East, South, and West).

Project Centered Teaching

The OC activity was a team effort – groups of three and four students per team. Each group needed to designate roles: Measurement Expert, Data Recorder, Scribe, and Sketcher of the OC in rough form. They could use any standard of measurement they wanted; (it was difficult to actually measure the OC in feet and inches). They could use the length of Joe's shoe, for example, or the length of a stick they found in the OC. Thus the North to South distance of the fence to the gate might be "279 Joe's Shoes." This is a math concept helping the students learn that distance standards are arbitrary and may vary from culture to culture. After many trips to the OC the students made preliminary and final maps of the OC and taped them on the classroom wall. They each looked a bit different, but the students had used measurement (a math skill), grids to designate specific areas (longitude and latitude used on world maps), and they learned to work as a team (not easy!).

A Student's Experience

For a Hacienda student, the OC is both changeless and changing, a place of both quiet and adventure. This is certainly true in the hilly, hot, dry Chaparral biome. In early fall when most of the Chaparral plants look like they might be on their last legs, the Coyote Bush blooms with prolific white blossoms. The teacher tells the class that this bush survived and grew back after the fire in the OC in the mid 70's. And the Hacienda student who adopted the bush goes to the OC with pencil, clipboard, and measuring tool, and draws a picture, carefully notes the size, texture, and shape of the leaf, the color of the blossoms and how they are clustered and arrayed. In this case they are compound blossoms, multiple blooms on one flower, and many flowers all clustered together. The fifth grader notices whether the bush branches grow out to the sides or are

erect. Then the student sits down in front of the coyote bush and just watches in quiet.

What does the bush smell like? What sounds are heard? Are there insects or lizards on or beneath the branches? What birds? Are there any nests inside the bush? What is the climate of the Chaparral at this time of year? How does this bush defend itself against the hot dry Chaparral weather? What is it about this bush that helped it survive the fire?

Conclusion

This Outdoor Classroom has survived theft, vandalism, arson and reconstruction; but most important it has been given life and been sustained by the huge involvement of parents, staff and students, businesses, and of course, the San Jose Water Company. These stalwart fans have built, organized, renewed, and made good use of the Outdoor Classroom for years and years. The OC is home to hummingbirds, ravens, Steller's Jays, a Cooper's Hawk, a snowy egret and nesting ducks. It is home to squirrels, frogs, five turtles, lizards, fish, crawdads, various crawling bugs and a variety of flying insects—and there are butterflies—and garden beds—and compost bins. There are currently thirty-two redwood trees (now over seventy feet tall), two Valley oaks, seven Live oaks, and a Bay Laurel, (one of the original trees planted in 1971). There are over eighteen different kinds of bushes in the Chaparral; and there are rushes and reeds, sedges and cattails in the Marsh; and a whole field of native grasses near the work tables and benches. A veritable poem, the Outdoor Classroom of Hacienda Environmental Science Magnet at Valley View compresses much into a small space and adds music. The Outdoor Classroom is a beautiful green ecosystem which has inspired children and adults and even national environmental thinkers. Edy Young's dream of forty years ago has been built and now reflects the beauty and complexity of Santa Clara Valley and its surrounding mountains. It was John Muir who said, "What we learn to love, we will not allow to be destroyed."