Xavier School Garden: Field of Dreams

Integrative Project

Saint-Mary-of-the-Woods College
Earth Literacy Graduate Program
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ABSTRACT: The main purpose of the Xavier School Garden is to raise awareness of the connections between students’ health and the health of the land that produces the food they consume. Students will be engaged in hands-on activities that will demonstrate the life cycle of plants: planting, harvesting, consuming, and composting the plants they have grown. To accomplish this purpose there are four goals of the Xavier School Garden Project. The first goal is to raise awareness among parents, students, and staff about composting, gardening, and other sustainability issues. The second is to raise awareness about healthy eating habits and physical activity among parents, students, and staff. The third is to gain an appreciation for the sacredness of creation. The fourth goal is to integrate the life science curriculum standards through hands-on activities that take place in the garden.
# Table of Contents

Introduction..................................................................................................................Page 4
Goals and Objectives ........................................................................................................Page 6
Process to Establish Xavier School Garden....................................................................Page 10
Discussion......................................................................................................................Page 20
Conclusion....................................................................................................................Page 28
Bibliography.................................................................................................................Page 30
Appendix A- Kansas School Gardening Pilot Project Application...............................Page 33
Appendix B- Healthy Habits for Life Grant Application..................................................Page 36
Appendix C- Schoolyard Membership Application.........................................................Page 41
Appendix D- School Board Proposal Power Point Presentation.....................................Page 44
Appendix E- Raised Bed Pricing and Schematics..............................................................Page 45
Appendix F- Fifth Grade Environmental Science Unit on Plants....................................Page 49
Appendix G- Additional Resources...............................................................................Page 52
Introduction - a Dream is Born

Students are eating processed food that contains too many sugars and carbohydrates. This, combined with less physical activity and less time spent outside, leads to unhealthy lifestyle and obesity. Most of students’ time is spent traveling in cars and playing inside, especially playing video games or watching T.V. or movies. With a majority of their time spent inside, students are unaware of their relationship to the earth and to the land upon which they live and depend upon for food. What better way to address these issues than to create a school garden.

My past teaching experience has led me to this point. When I taught 4th grade in Denver, CO at Annunciation School, I asked my students one day where their food came from. The quick response was “the grocery store”. I knew then I needed to be teaching them at least how vegetables are grown. My students and I were able to plant a 3’x3’ bed and grow lettuce and radishes. We were able to harvest salad in the spring and fall. The school had its own chef and he offered to help prepare the salad with my students and to make salad dressing with them from scratch. They were then able to eat the fruit of their own labor. During my two years in Denver, I also created a classroom worm bin with the help of DUG (Denver Urban Gardens). Once compost was created, my students would add it into our soil for the garden, completing the life cycle of the plants. They took home some of the compost and added it to their own garden beds or potted plants. After my two years in Denver, I moved to Leavenworth, Kansas to begin my novitiate year with the Sisters of Charity of Leavenworth. During this year I also began my masters’ degree in Earth Literacy from Saint-Mary-of-the-Woods College. After first vows, I began teaching at Xavier Catholic Elementary while continuing my Earth Literacy degree.
In light of Earth Literacy teaching us to become change agents in our local community by promoting a sustainability project, I began to dream about creating a school garden.

When I started teaching at Xavier I really wanted to start some kind of garden on a bigger scale than the one I had in Denver. However I was stymied for my first two years because the school was spread between three buildings: K-2 in one, 3-5 in another, and 6-8 in a third building. This year in the fall of 2011 we consolidated all three buildings by moving to a renovated public school building. This move was really the catalyst for the garden project because all students and staff are now under one roof, making it easier to collaborate and communicate. The new site sits on sixteen acres that have a lot of green space.

Finally the opportunity has presented itself to begin building a school garden. To assist with the necessary funding, I have applied and received a grant entitled, “Kansas School Garden Pilot Project” through the KSDE (Kansas Department of Education). This pays the salary of my master farmer/gardener for one year and gives us a complete set of the Junior Master Gardener Curriculum. I have also applied for a grant entitled, “Healthy Habits for Life” from Blue Cross and Blue Shield. The program funded by this grant would include designing, planting, and maintaining a school garden for Xavier Elementary in Leavenworth, Kansas. The garden would consist of six 4’ x 12’ raised beds.

In order to promote ownership, grades 4-8 would be directly involved in building raised beds, planning, planting, maintaining, and harvesting the produce. The physical activity necessary for maintaining the project would be a very positive factor in encouraging a healthy lifestyle. Produce from the garden would be used as classroom snacks and/or in conjunction
with the school lunch program, thus raising awareness and encouraging healthy eating habits.

It is hoped that the increased physical activity and healthy eating habits would both contribute to better cardiovascular health and increased mental focus on academics for all of our students. Grades K-3 would be indirectly involved by teachers incorporating the garden into their lessons in different areas of their curriculum, for example, science- identifying plants, math- measuring, and language arts- doing descriptive writing. With community involvement from parents I hope to increase parental awareness and promote better health for the whole community.

**Goals and Objectives:**

These are the four goals stated in the abstract. I have developed objectives for each goal to guide the project as it is implemented.

*The first goal is to raise awareness among parents, students, and staff about gardening, composting and other sustainability issues.*

One of the objectives for this goal will be that students, staff, and parents taking an active role in implementing the garden in collaboration with community organizations. I received a grant for being a pilot school garden in the state of Kansas from the Kansas State Department of Health and Environment. The grant pays for a Master Gardener Loretta Craig’s salary. She will play a role in teaching and establishing the garden in collaboration with the teaching staff. The grant gives the school a Junior Master Gardener’s Curriculum which Loretta and the teachers can use to teach about gardening. This comes through Kansas State Extension Office. On November 7 students and staff will build 6 raised beds with Kansas City Community Gardens staff.
A second objective is to obtain funding for and to establish a program for composting food waste. The computer club at Xavier Elementary is interesting in researching, and applying for a grant that would help implement composting in the school cafeteria.

A third objective is to establish a green team that will help maintain the school garden year around. I have recruited one parent who is willing to be an adult sponsor of the green team. She is a retired science teacher who has her own garden and composes. I hope to incorporate the facilitation method, found in the book, *The Circle Way*, with the members of the green team. I have used this method before and found it allows everyone to have a voice and lends itself to more active participation among the members of the group.

*The second goal is to raise awareness about healthy eating habits and physical exercise among parents, students, and staff.*

The first objective will be that students will recognize the importance of healthy eating habits in their lives. Students will become more aware of which foods promote healthy living through our local Country Mart Grocery Store giving an on-site presentation on healthy foods to our students in the store’s produce section. Students’ knowledge of healthy eating habits will increase through participation in a program presented by the school nurse. Students will plan and share classroom snacks using garden produce to encourage healthy eating habits or the produce will be used in conjunction with the school lunch program. Students would have a vested interest to consume what they produced with their own hands and this would increase their consumption of vegetables that would encourage healthy food choices in the cafeteria.
With community involvement in the garden from parents we hope to also increase parental awareness and promote better health for the whole community.

The second objective will be that students will engage in increased physical activity by working in the garden. Students will spend time building raised beds in November. In the spring and summer students will spend approximately 20 minutes twice a week in planting, maintaining, and harvesting their garden. 

The third goal is to gain an appreciation for the sacredness of creation through planting and harvesting our food in conjunction with prayer services.

The first objective is for students to become aware of God in the creation around them in the plants and the animals and insects found within the garden. This will be accomplished through observation and discovery of the intricate details found in a leaf or an insect’s bright colors. Students will develop an attitude of appreciation and gratitude for God’s gift of creation.

The second objective will be for students to deepen their personal relationship with God through connection with God’s creation. Students will have an opportunity to quietly reflect and journal in the garden. Jesus lived in a culture where people were more in contact with nature in their daily lives. He refers to nature in many of his parables, the weeds and the wheat, birds, and flowers, harvesting of crops. Helping students to connect their concrete experiences or observations of nature with Scripture will bring their personal faith to life.

The third objective will be for students to connect their Catholic corporate identity to their garden. In writing a research paper with my fifth graders about how to make a school
garden, students said they wanted religious statues and prayer services held in the garden. This inspired me to add a grotto at one end of the garden with a statue of Mary. There will be seating around the garden for students to gather. A perfect use of the garden would be a May Day crowning of Mary in the garden or praying the rosary there.

*The fourth goal is to integrate the life science curriculum standards through hands-on activities that take place in the garden.*

My first objective is to find resources and lessons for myself and other teachers in my building that relate to our state standards. I was able to attend a two day workshop entitled, “Digging into School Gardens” sponsored by KACEE (Kansas Association of Conservation and Environmental Education). I went along with Janet Meyer, Loretta Craig, and Mandy Mroszczak. The workshop gave us resources from Project Learning Tree, Project Wet, Project Wild, and Project Wild Aquatic. KACEE also has an organization called Kansas Green Schools and has created a School Garden Curriculum on-line.

My second objective is to integrate these resources into what we are teaching and learning during creating and caring for the garden. For example, in fifth grade as students learn about plants, the unit could be expanded to include the operation of the garden and how to effectively utilize the outdoor elements such as temperature, sunshine, rain, wind, etc. These would be hands-on activities such as having a rain gauge, charting plant growth, and having an insect scavenger hunt in the garden, to increase students’ observation and classification skills.
**Process to Establish Xavier School Garden**

*Grants:* I am currently laying the groundwork for this project. The initiating action was our administrator, Barbara Ferrara, forwarding me a grant application for the Kansas Schools Gardening Pilot Project. The grant would provide salary for a master farmer/gardener up to $2500 and a set of the Junior Master Gardener Curriculum. I asked for help from the fourth grade teacher, Janet Meyer, and my friend, Loretta Craig, who is a Master Gardener/Farmer. Together the three of us wrote the grant, with Loretta agreeing to be our master gardener/farmer. On September 16 we were notified that we had received the grant (See appendix A). Upon receiving the grant, we realized we now have to start our school garden project! After telling our school principal, Karen Davis, that we had received the grant, she passed another grant our way, “Healthy Habits for Life” funded by Blue Cross and Blue Shield. This one is for $1000 and would help fund the beds and supplies for the garden. We will know December 9 if we have received the funds (See Appendix B). I will be applying for a third grant, entitled Kansas School Gardens Grant through KACEE (Kansas Association of Conservation and Environmental Education). This is a $500 dollar grant for supplies and tools for the garden and the grant application is due November 14, 2011.

*Core Group and Plan for the Garden Beds:* Our core group contains the three of us who have been involved in the grant writing: Loretta Craig, master gardener/farmer, Janet Meyer, fourth grade teacher, and myself S. Rejane Cytacki, fifth grade teacher. We are also including Mandy Mroszczak, a parent and past junior high science teacher. She has an interest in composting and will be a great help with the garden. We keep adding to our team, for instance,
Steve Horosko who is our maintenance man will be helping build the beds. Loretta started contacting Kansas City Community Gardens, a community organization that has built more than 100 schoolyard gardens at low cost. On September 30 Loretta, Janet, and myself were able to talk with MaryAnna Henggeler, Schoolyard Gardens Coordinator, at the Bean Stalk garden in Kansas City, Missouri. We joined this organization (See Appendix C). She toured us around this garden and four other schoolyard gardens to give us some ideas about what a schoolyard garden can look like.

The four of us created a plan of what we would like to make our garden look like. Not too big and not too small, involving grades 4-8 this first year and next year to try to involve grades k-3. We decided we want a wood or iron pergola that will be an entryway into our garden and will eventually be covered with green vines. The beds will be lengthwise on the west side of the school. There will be an eight foot central aisle with three beds on each side. At the far western point there will be a grotto for a statue of Mary, Our Blessed Mother. I have forty tulip and daffodil bulbs to beautify the grotto that the students will plant this fall when the raised beds are built. Loretta has a statue of Mary and another family has a claw foot bathtub that they are willing to donate to give the statue some protection from the elements (See the photos and diagram below). Kansas City Community Gardens is coming November 7 to build the beds with our students. There will be three 45 minute shifts of fifteen students building the beds, shoveling dirt into the beds, and planting flower bulbs. Members of KCCG, myself, Loretta, Mandy, and Steve Horosko will be overseeing this project. We will have a school photographer taking pictures.
EXAMPLE OF RAISED BEDS
Xavier School Garden Layout

We hope to include an arch trellis or gate to mark an entrance to the garden space.

4’ x 12’ Beds

4’ between rows

8’ center walkway

20’

12’

To acknowledge the spiritual component of the garden, we hope to add a grotto for contemplation.
Presenting Plan and Publicity: After receiving grant funding, gathering a core group, and developing an initial plan for the beds a formal proposal was prepared for the School Board of Xavier Catholic Elementary School in October (See Appendix D). The board approved the use of a 30’x50’ piece of land on the west side of the school on October 18. They did mention that in
five to ten years this land may be used for an addition to the school for more classrooms. With board approval, we began our publicity campaign on October 26 and 27 during parent teacher conferences. Mandy created a sign for our groundbreaking, Loretta created a digital photo montage of school gardens around the area, and I put the PowerPoint presentation of the school board proposal on the T.V. in the hallway. November 7 Kansas City Community Gardens members will come and build six raised beds with grades 4-8. The untreated cedar 12’ x 4’ framed beds will be organic and the soil will be 50 percent compost (See Garden Layout in Appendix E).
**Student Involvement**: The first week of November the teachers in grades 4-8 will choose randomly nine students to build the beds on November 7. This hands-on project will hopefully spark interest in students wanting to become members of the School Green Team. The Green Team will have two purposes this first year: first to create a composting program with our food waste in the cafeteria, and second to be available in the summer to help weed, water, plant, and harvest our crops (See flier below). The Green Team can also help build up student excitement for the garden and help us decide how to plant each bed. Should we do a thematic bed or let each grade decide what they want to plant?

The first step will be to have an initial meeting of the School Green Team which includes the core group and students. I would like to hold it in the chapel using a facilitation method known as the Circle Way which encompasses prayer, helps focus our intentionality, and includes active participation (Baldwin and Linnea, The Circle Way: A Leader in Every Chair). There are three principles: 1. Leadership is rotating 2. Responsibility is shared 3. The center is held by reliance on the whole group. There are four agreements that everyone agrees to at the beginning of a meeting: 1. Stories we share are kept in the circle 2. We listen with compassion and curiosity withholding judgment. 3. We ask each other for what we need and offer what we can. 4. From time to time we pause to re-gather our thoughts or focus (Baldwin and Linnea, A Guide to PeerSpirit Circling). There are 3 rotating roles the host, guardian, and scribe. The host is the facilitator of the meeting, the guardian is the time keeper, and the scribe is the note taker. This method connects to the cycle of nature by using an evolving process that includes the gifts of all members of the group. The process builds community among its members and requires teamwork for a successful group.
As host of the first meeting it is important to arrange the chairs in a circle. People will be invited to bring an object that holds a good memory of being outside with them. The opening would include singing “For the Beauty of the Earth” and having an earth prayer. Then I will state my intention and explain the Circle Way process. My intention is to give everyone a chance to share what brought us here to start a Green Team and what experience do they have of gardening. We will talk about the agreements and principles of the Circle Way. The next step is to start a round of check-in. At this point everyone shares a story around their objects they brought and places them on the table in the center of the circle, giving everyone ownership over the discussion. We will use a talking stick so that everyone has a chance to share. I would like to meet twice between now and Christmas.
Help Xavier Become Green(er)!

Leavenworth knows we were our green proudly. Let's widen the circle and join our green to the Kansas Green Schools Network!

Join the Xavier Green team to discuss applying for a Kansas Green Schools grant to reduce our solid waste. Contact S. Cytacki. Parents and students are welcome!

LET'S TURN THIS

The Kansas Green Schools Network administers grant funding provided by the Kansas Department of Health and the Environment to raise environmental awareness locally in the schools.

 INTO THIS!!!
 Turn our lunchroom scraps into nutrient rich compost for...

Compost is just one way to reduce solid waste, Other ideas include:
• Tour our local trash transfer station
• Learn more about recycling
• Provide cloth shopping bags
 Bring your ideas!
**Future Plans:** In the spring of 2012 we will plant our six beds. I hope to have the Green Team established to the point where they are working on a composting project which will help keep the garden sustainable and raise awareness among the students and staff about the benefits of compost. We can have a big Earth Day celebration around the garden, bringing in high school gardeners from Lawrence who are paid to work at the West Middle School garden afterschool and on weekends. I hope that in the summer time we will have established a parent and student base in which a core group will come for Weeding Wednesdays, which will involve weeding, watering, and harvesting the produce. At the end of June other crops can be planted and by the end of July a fall garden can be begun. The fall of 2012 we hope to harvest our summer crop to either use in our cafeteria to do a small salad bar or have healthy classroom snacks. The spring of 2013 we hope to expand: perhaps an herb garden or collaboration between the k-3 students and the University of Saint Mary biology students to build a butterfly research garden together, or other possibilities may arise. Perhaps, three-five years down the road a high tunnel could be installed to prolong our growing season into November and allow us to start planting in March.

**Discussion**

Why create a school garden? The foundational principles of creating a school garden are: to heighten a student’s awareness of their local environment and how it works, to create experiential opportunities for students to learn the mandated curriculum, to work toward a healthier lifestyle in eating and exercise through connecting to grown food, to build community
and to raise a spiritual connection to creation. These principles relate closely to the above goals. However, the ideas of community building and students’ awareness of their local environment expand on those goals.

A school garden is not a new concept; rather it is an idea that recycles itself through the ages and whose purposes genuinely have not changed with time. Two books from the early 1900s illustrate this. In *Children’s Gardens*, the rationale for having a school garden is very clear. For the students of the city there is a need to be in contact with things of nature that are outside because they have no contact with these in their daily lives. Students in rural areas may be ignorant as to how the processes of nature are working even though they see them day to day (Miller). *How to Make School Gardens* concurs with the first book by stating that students should not be deprived of contact with soil. Seeing the success of European school gardens, the need to bring gardens to the United States was a must. The need for students to be producers as well as consumers gives them a sense of responsibility toward what they produce and they develop good work habits (Hemenway). School gardens can be used to teach across the curriculum from science to math to language arts to business. Having a garden can raise a student’s abilities to observe and report upon what is happening outside around them. Gardens can also raise awareness of all that is beautiful in creation (Hemenway). In 1916 the U.S. Education Bureau stressed the importance of students being producers as well as consumers through managing their own garden plot and selling the vegetables they had grown. These activities can enhance their lives in the city and connect them to the earth (Jarvis).
Student Awareness of Local Environment: School gardens are perfect teaching tools that can help students invest in their local environment through small scale hands-on experiences (Sobel, Beyond Ecophobia: Reclaiming the Heart in Nature Education). David Sobel in both, Beyond Ecophobia: Reclaiming the Heart in Nature Education and Place-Based Education, emphasizes the importance of educating children about the land where they live. He points out that the use of technology in raising global awareness, for example the loss of the rain forest in South America, does not directly connect the student to an issue because it is not concrete and close to home. He says it cuts them off from their roots. When students spend less time outside, they tend to have a heightened sense of environmental degradation and may spend more time worrying about it than enjoying what is outside their doors. Sobel makes the case that it would be better for students to invest time in a local project in which they learn about the environment where they live and develop a relationship with the land actually in their lives. As students get older they will have been taught the tools to devise sustainable practices for the future (Sobel, Beyond Ecophobia: Reclaiming the Heart in Nature Education). Empathy is taught more easily through a hands-on project that is touchable and reachable right in front of the child, not through an untouchable project that is thousands of miles away. Contrary to the approach used in place-based education, generic textbooks are designed to be the same wherever one lives in the country in order to increase the market for the textbook company. The standardization of school curricula creates a disconnection between students and their education in their local communities (Sobel, Place-Based Education). The argument is that education should start in the local community in which students live.
The book by Scott Russell Sanders, *Staying Put: Making a Home in a Restless World* echoes the above argument when he says “I believe we can only be adequate to the earth if we are adequate to our neighborhoods. At the same time, we can live wisely in our chosen place only if we recognize its connections to the rest of the planet” (Sanders xiv). Sanders goes on to say that it is how our land holds up under our use that is important for our future generations (Sanders 91). Teaching students how to take care of a garden that produces food is one way to promote the sustainability that Sanders is speaking about.

*Promoting a Healthier Lifestyle by Connecting to our Food: Alice Water’s Edible Schoolyard* project has spearheaded the movement to connect and educate students about the origin of their food and how their food choices affect their health. As child obesity and diabetes rates are on the rise, she sees school gardens that produce food for a healthy public school lunch as a necessity. If students are to make healthier food choices, students need hands-on experience in growing that healthy food, giving them a vested interest in producing what they are consuming. She has five principles of Edible Education: food is an academic subject, schools provide lunch for every child, schools support farms, children learn by doing, and beauty is a language (Waters 30).

Jane Goodall agrees with Alice Waters that eating home grown food will lead to a healthier lifestyle for our children. She points to several studies that show a direct link between processed sugar (including fructose corn syrup) and behavior problems and even violent behavior. The need to counteract fast food diets and sedentary lifestyles involves moving children outside and giving them healthier diets. Stephen J. Schoenthaler, a sociologist, worked
with juvenile correctional facilities. His study showed that switching from a standard diet of carbohydrates and sugar to one with whole grains, fruits, and vegetables decreased violent behavior by half in the facilities studied (Goodall 247). Goodall also makes the argument that portion size contributes to one’s overall health. As evidence she points to the SuperSize Me video showing how eating McDonald’s food solely for one month had devastating results on the filmmaker’s health. There should not be a barrier between the sources of food and what people eat; they should be able to use their senses to understand and build connections with their food. A disconnect happens when people only experience packaged, processed, convenient food.

Both Waters and Goodall point to solutions to obesity problems in America. First, grow a school garden that can provide produce for school lunches. Second bring in organic food from local farmers and CSAs (Community Supported Agriculture). In Los Angeles the school district offered a salad bar and found that calorie and fat consumption fell among their students (Goodall).

Community Building: Placed-based education instills in students a sense of community. School gardens that involve the community at large through volunteers and those who receive the produce are some examples of how this happens. One specific example occurs in Flagstaff, Arizona on a Navajo Reservation. The school called STAR School (Service To All Relations) is built on the conviction that “place” teaches students the importance of relationships in their lives: relationships with the earth, with their elders, and with each other. An underlying principle is that these relationships are interwoven and that living in balance in order to sustain resources
for future generations is crucial (Gruenewald and Smith 50). Another example found in William Shutkin’s book *The Land that Could Be*, takes place in urban heart of Boston- the Dudley neighborhood. This was a place that was hard hit by urban blight and pollution. Through the hard work of the neighborhood group and funding through grants the Dudley Street Neighborhood Initiative was born. Its purpose was clean up the land and buildings while instilling people’s pride in their community. Later DSNI branched out into the Urban Agricultural Strategy (UAS). Through organic agriculture run by neighborhood residences a renewed sense of worth and place will strengthen and renew the community through sustainable practices and jobs (Shutkin 143-165).

Sobel cites many examples of place-based educational projects that branch out into the larger community. One describes Littleton, New Hampshire where students from K-12, having worked with their river for several assignments were able to raise awareness in the larger community so that a river walk and museum in which students were responsible for the displays was developed (Sobel, Place-Based Education 2). Another example occurred in Louisiana where students wanted to reduce the mosquito population. By investigating guppies and mosquito fish they learned about the lifecycle of the fish and were able to put together a brochure to educate others (Sobel, Place-Based Education 3).

Alice Waters’ *Edible Schoolyard* is yet another example of involving the larger community. She was able as a chef to involve several people in the restaurant business to help donate time and money and transform Martin Luther King Middle School into a project for
building community with the students. The kitchen area allows students to build conversations around food and teaches students how to prepare the food they have grown (Waters).

**Love of Creation**: Another vital purpose for having a school garden is raising awareness of how our faith is innately connected to creation. Students will not love nature if they do not experience amazement, wonder, and beauty of creation that is interconnected with God. Richard Louv points to his four-year-old asking him if God and Mother Nature were married or just good friends (Louv). This shows a child’s instinctive ability to discern the intimate relationship between God and creation. The need for children to be able to appreciate and be amazed by nature leads to their future efforts in trying to save their natural world from destruction or harm. Introducing children to nature allows them to see the interconnections they have with it and to know they really aren’t alone in this world but rather are a part of it. Louv points out how children love their stuffed animals in almost a symbolic way, connecting them to the relationships our ancestors had with animals of the past when we lived in harmony with them in nature (Louv).

Do we really care for God if we do not care for his creation? Joanna Macy in her book, *World as Lover, World as Self*, speaks of three important steps in developing a faith grounded in relation to the earth: first, to discover what we know and feel, second to discover who we are, and third to discover what can happen through us; this is grace (Macy 30). All these steps start from the individual but move outward in direct relation to other people and to God’s creation. We must reawaken our children to this kind of spiritual connection with nature. Louv has a poignant story of a ninth grader who was on a family vacation and found his spot that he had
always envisioned in nature. It was such a religious experience that he lost track of time and worried his parents. He described his spot as if he had found heaven on earth (Louv 305). In ELM 501 we used the book Art of the Earth, written by our professor Elizabeth Hyatt, and were asked to find a sacred spot in which we could pray, journal, and connect with creation. This was a powerful experience. Sobel has a quote that says “What’s important is that children have an opportunity to bond with the natural world, to learn to love it, before being asked to heal its wounds” (Sobel, Beyond Ecophobia: Reclaiming the Heart in Nature Education 9).

Creating Experiential Opportunities that Connect the Curriculum: In ELM 520, we used the book, Environmental Science to learn about ecosystems, and Kansas 5th graders are expected learn about ecosystems, too. In Ecological Education in Action, there are several examples of teaching the classroom curriculum using the natural world. The connection starts with a grounded sense of place and looking at the local environment as a teacher. Paul Krapfel provided several examples of using the outdoors to teach the life sciences of plants. He would allow students to go outside and label their own flowers. They would draw them and observe them daily to watch the changes that occurred and see how long they lived. Students could identify the flower parts instead of just looking at labeled parts in the book. Krapfel really showed how the scientific method could be applied to student experiments. To teach them about cellular respiration, he had them tie a plastic bag over a few leaves. Each student performed this test themselves. Afterwards they observed that certain bags had more water than others. This led to a discussion of why and to a retest based on north or south facing
leaves. Students began to realize that experiments may need to be repeated more than once and improved upon (Smith and Williams). What better way of teaching it but to integrate hands-on science experiments in nature (See also my unit on plants in Appendix F).

Howard Gardener, a researcher who developed the theory of seven multiple intelligences explaining how people learn, recently added an eighth one, “nature smart” (Louv). Certain students have the innate ability to learn in their natural environment. Being outside and raising a garden can increase such student’s core curricular activities. In Last Child in the Woods, Richard Louv points out that Finland has really geared their curriculum to the outdoors. After a forty-five minute session in the classroom, students are given fifteen minutes of outside time. Students must interact with their environment through play (Louv). The natural environment provides an endless source for students to use problem-solving skills and imagination during their play. Louv claims in the United States there is a large contingent of students who have “nature-deficit disorder”. They are out of touch with the outdoors. They may be savvy about environmental degradation around the world but spend most of their time inside a classroom. Furthermore, Sobel points to a SEER report (State Education and Environment Report) that shows student achievement improves across all the subjects in the curriculum when students spend learning time outside (Sobel, Place-Based Education). There is increased enthusiasm and interest in learning as well as more problem-solving taking place.

**Conclusion**

The main purpose for the garden to provide a direct link between our students’ health and the health of the land that provides the food they consume. While this is usually
interpreted to mean solely the physical health of the students and land, I would argue health includes the spiritual vitality of our students and land at a deeper level.

On that day Jesus went out of the house and sat by the sea . . . . He spoke to them in parables saying: A sower went out to sow. And as he sowed, some seed fell on the path, and birds came and ate it up. Some fell on rocky ground, where it had little soil. It sprang up at once because the soil was not deep, and when the sun rose it was scorched, and it withered for lack of roots. Some seed fell among thorns, and the thorns grew up and choked it. But some seed fell on rich soil, and produced fruit, a hundred or sixty or thirtyfold. Whoever has ears ought to hear (Matthew 13:3-9).

In order to appreciate the direct connection between creation and human life, I turn to scripture. In the scripture passage quoted above we see Jesus coming outside to meet the people where they could see how the seed needs a rich soil to produce an abundant yield. This makes a direct connection to our lives as we need our faith to be firmly rooted in the rich soil of God. This teaching of Jesus is a good example of how he related God to the daily experiences of the people. As a Catholic religious sister I view my role in this project as being a guide to students in integrating spirituality into our daily lives through understanding the process of producing the food required for sustaining life itself.

A homily that I heard on this scripture linked humans to humus and to the virtue of humility; all three words have the same root meaning, namely, “come from the ground”. When we describe people as being down to earth, we are in essence describing humility, the ability to look at the real and recognize what needs to be done. As living beings we are allied to our humus or soil, that which is rich in microorganisms and is really needed for life. Can we come to realize the connection between our soul and our soil (McEvoy)? It is important to start at the foundation, the earth and its soil that produces the food that strengthens our connection to all
life forms on earth and roots everything in God and God’s creation. What better way to meet God than in a garden?

Bibliography


Appendix A- Kansas School Gardening Pilot Project Application

Kansas State Department of Education (KSDE), Child Nutrition & Wellness

Kansas School Gardening Pilot Project Application

USDA strongly encourages school gardening projects. Child Nutrition & Wellness, Kansas State Department of Education, supports efforts of public, private schools and residential care institutions to develop and maintain school gardens at their educational sites. It is our intent to provide funding for technical assistance to develop four (4) school gardening pilot projects in Kansas for the 2011-12 school year. Application due September 9, 2011. Announcement of grantees: September 16, 2011

If your school is selected,

1. KSDE will provide:
   a. funding to contract with a local farmer or gardener (up to $2500 at $15/hour) to provide technical assistance to develop and maintain the school garden. The Local Gardener/Farmer will be required to submit invoice(s) with time worked to KSDE for payment.
   b. Junior Master Gardener curriculum including a Teacher/Leader Guide and Student Handbooks.

2. The school will be required to:
   a. provide a project summary and
   b. share successes and lessons learned with other Kansas schools.

Application Process:

School Sponsor Number (DO/XO)/Name Xavier Catholic Elementary School________

School Contact Person S. Rejane Cytacki__________ Email srrejane@archkckcs.org
Mailing address  541 Muncie Rd.  Leavenworth, KS 66048__________________

Physical address of Garden  541 Muncie Road.______________________________

Name of Local Farmer/Gardener Resource Person   Loretta Craig_____________

Contact information for Local Farmer/Gardener Resource Person:

Email _lcraig86@gmail.com____

Phone ___913-728-2005________

Mailing Address _14811 Hollingsworth Road   Basehor, KS 66007

Tell us about your proposed pilot garden project:

How will the Local Farmer/Gardener Resource Person be involved in the Garden Project?

Loretta Craig, farm steward of Prairie Garden Farm, has operated a small CSA (community supported agriculture), is a certified teacher and Master Gardener, and is active in the local food movement. Loretta will work with our team to design, implement and maintain the garden project. After consulting on the design, location and scope of the garden, Loretta will be instrumental in obtaining resources and materials for any construction or water systems. She will advise on plant selection, creating a production plan and preparation of the soil. She will oversee the planting of the beds, and provide instruction in horticulture, sustainability, and biology as requested from the staff. She will make a significant contribution to our program by instituting practices to maintain the sustainability of the garden project for the long term.

Provide number of students and how they will be involved in the Garden Project.

There will be 130 fourth through eighth grade students directly involved in the soil preparation, planting, maintaining, and harvesting of the garden. The 120 kindergarten through third grade students will be indirectly involved through observation of plant growth and consuming the produce. All students will be involved in composting the cafeteria organic waste material that will be used to fertilize the garden.

List other partners who will be involved in the project (i.e. school organizations, community groups, farms, businesses, etc.)

School organizations that will be involved are the School Green Team, Parent Teacher Organization, and University of Saint Mary service learning program. Community groups that will be involved are Sisters of Charity of Leavenworth and their Care of Creation Committee,
Kansas Extension Office Master Gardeners, and Get Growing KC. Prairie Garden Farm and Schwinn Farm will also be our partners in this project. Businesses that have been contacted for additional support are Home Depot, Homestead Nursery, and Grasspad.

Explain the plans that you have for the food you grow (i.e. classroom education, donation or sale to school cafeteria, food bank, etc.)

The creation and maintenance of the garden will be integrated into the curriculum of the entire school, K-8 grades. In the life sciences, several grades have units on plants and their lifecycles. The garden will provide an excellent way to observe and learn about a plant’s lifecycle through hands-on experience. The garden also provides opportunities for the language arts curriculum through descriptive writing and poetry. Loretta Craig will also work with the technology teacher to help the students create a blog about their garden. The produce from the garden will be donated to the school cafeteria for the creation of a salad bar with the help of parent volunteers.

Describe how the garden pilot project will improve the life of the school and community.

Xavier school sits on sixteen acres of land and is an ideal location for a school garden. Our year round childcare facility will make it possible for students to help maintain the garden through the summer, as well as throughout the school year. I, S. Rejane Cytacki, am in the process of completing my Earth Literacy Master’s Degree from Saint Mary-of-the-Woods College. This program involves learning sustainable environmental practices in order to educate other people within my local community. My thesis project is to start a school garden that will educate students in learning about their local environment and how it enhances their own health through healthy eating. Students will in turn educate their parents.

As a Catholic school, we recognize that caring for the garden would include a spiritual component. Students will learn responsibility as they care for God’s creation by preserving green space. They would increase their awareness of the connection between their health and the food they eat. Having a school garden will foster community as students collaborate together in the care of the garden. The older students will be empowered by teaching the younger students about plants. Our collaboration with all of our partners will strengthen our relationships within our local community. All of these factors will lead to a successful school garden.
Appendix B- Healthy Habits for Life Grant Application

Healthy Habits for Life Grant through Blue Cross/ Blue Shield

Program Overview

My name is Sister Rejane Cytacki and I am the fifth grade teacher at Xavier Elementary. I am currently working on a Masters of Earth Literacy from Saint-Mary-of-the-Woods-College. My masters’ thesis requires me to create a program that raises awareness and educates my local community about sustainable practices that promote healthy living. The program funded by this grant would include designing, planting, and maintaining a school garden for Xavier Elementary in Leavenworth, Kansas. Xavier is a K-8 school located on 16 acres of land. The garden would consist of 6 raised beds, 4’ x 12’. Grades 4th-8th would be directly involved to promote ownership in building raised beds, planning and planting as well as maintaining and harvesting the produce. The physical activity necessary for maintaining the project would be a very positive factor in encouraging a healthy lifestyle. Produce from the garden would be used as classroom snacks and/or in conjunction with the school lunch program, thus raising awareness and encouraging healthy eating habits. The increased physical activity and healthy eating habits would both contribute to better cardiovascular health and increased mental focus on academics for all of our students. Grades K-3rd would be indirectly involved by teachers...
incorporating the garden into their lessons in different areas of their curriculum: science-identify plants, math- measuring, and language arts- descriptive writing. With community involvement from parents we hope to also increase their awareness and promote better health for the whole community.

**Goals and Activities**

Our target population is 130 4th-8th graders at Xavier Elementary; however, the K-3rd graders will also be participating in some of the activities.

1. **Students will engage in increased physical activity.**
   
   A. Students will spend approximately 30 minutes in building raised beds.
   
   B. Students will spend approximately 20 minutes twice weekly in planting, maintaining, and harvesting their garden.

2. **Students will recognize the importance of healthy eating habits to reduce cardiovascular risk factors.**
   
   A. Students will become more aware of which foods promote healthy living through our local Country Mart Grocery Store giving an on-site presentation on healthy foods to our students in the store’s produce section.
   
   B. Students’ knowledge of healthy eating habits will increase through participation in a program presented by the school nurse.
   
   C. Students will plan and share classroom snacks using garden produce to encourage healthy eating habits or the produce will be used in conjunction with the school lunch program.
III. Students will participate in the Junior Master Gardener’s Curriculum.

A. (Activities are embedded within the curriculum)

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**Applicant’s Work Responsibilities**

I will be working in conjunction with the 4th-8th grade teachers, the school nurse, and a local farmer/gardener. I will be working with parents and other local community members throughout this program. As the fifth grade teacher the garden program will enhance my life science unit on plants as well as other areas of the curriculum.

**Assessment of the Program**

The effectiveness of the program will be measured through a pre/post-assessment of knowledge about the importance of healthy eating habits and physical activity on students’ cardiovascular health. We will also conduct a pre/post survey to determine if students’ eating habits change and if their amount of physical activity increases from the beginning to the end of the program. We will also log the number of minutes of physical activity spent in the garden.

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**Xavier School Garden Budget**

Healthy Habits for Life $1000.00 grant
Six Raised Beds (this includes lumber and garden soil) 4’x12’ bed 8” depth

6 beds x $106.96 = $641.76

We will use the remainder of the grant money to purchase the following garden equipment.

<table>
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<tr>
<th>Item</th>
<th>Quantity</th>
<th>Price</th>
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<tbody>
<tr>
<td>Raised beds</td>
<td>6x $106.96</td>
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<tr>
<td>Hoes</td>
<td>3x$25</td>
<td>$75.00</td>
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<tr>
<td>Trowels</td>
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<tr>
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<tr>
<td><strong>Total Expenditures</strong></td>
<td></td>
<td><strong>$1000.00</strong></td>
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</table>
Xavier School Garden Layout

School Building

We hope to include an arch trellis or gate to mark an entrance to the garden space.

4' x 12' Beds
4' between rows
8' center walkway

12'
32'
20'

Future Grotto Site
To acknowledge the spiritual component of the garden, we hope to add a grotto for contemplation.
Appendix C- Schoolyard Membership Application

Schoolyard Gardens Membership Application

Thank you for your interest in Kansas City Community Gardens’ Schoolyard Gardens program. Our program exists to promote food gardens in schools to help children learn about nutrition and healthy eating habits, develop gardening skills, increase understanding of plant science and increase environmental awareness.

MEMBERSHIP PROCESS

1) Meet with the Schoolyard Gardens Coordinator to evaluate your site, discuss the use of and vision for your school garden
2) Complete the Schoolyard Gardens Membership Application
3) Work with the Schoolyard Gardens Coordinator to construct your garden (raised bed construction or tilling)
4) Plant and maintain your school garden

EXPECTATIONS

Schools Must...

- **Participate in Site Visits:** The Schoolyard Gardens Coordinator will meet with you at least once a year (typically more often the first couple of years) to talk with you about your garden. This meeting will include evaluation of how the garden is doing, suggestions for improvements and ways that we can help you make your garden more successful.

- **Complete Survey Materials:** Student and Teacher feedback is important for both improving and funding our program. Short student pre and post gardening surveys will be distributed for students in 3rd grade and above in the fall and in the spring. Teacher surveys will be distributed in the spring.

- **Help Students Maintain School Garden:** Coordinate regular care of the garden with participating students and teachers.

- **Provide Photos:** Please send 2-3 photos of your school garden to KCCG each year either by mail or electronically. These photos will be used on our website and in publications to highlight school garden activities around the city. KCCG photo releases are available.

In Return KCCG will Provide...

- **Site Evaluation and Garden Construction Assistance:** The Schoolyard Gardens Coordinator will meet with you at your site to determine the best location for the garden. If you choose to install raised beds, we will: order and pre-cut the lumber, order the soil for delivery, till underneath the raised beds and coordinate and provide tools for the garden construction project.

- **Low-Cost Seeds, Plants and Gardening Resources:** Your $2.00 annual membership fee gives you access to low-cost seeds, plants and fertilizer as well as tools on loan for free.
- **Garden Assistance and Support:** The Schoolyard Gardens Coordinator is available to help students plant and/or harvest your school garden. We are also available to answer questions throughout the year and trouble-shoot any garden problems.

- **Educational Materials:** The Schoolyard Gardens program provides a CD of garden-related lessons that can be adapted to your classroom needs to help you integrate the garden into your classroom.

- **Workshops:** Several Schoolyard Garden workshops are offered each year for teachers, parents and other schools staff working with school gardens. KCCG also offers workshops on a variety of different gardening topics. Teachers are welcome to attend any of these workshops

I have read the above expectations and agree to follow through with these to the best of my abilities:

Name: ___________________________________________ Date: ________________________________

**GENERAL INFORMATION**

Date: ________________

Name of School: ____________________________ School Phone: ________________________________

Mailing Address:

____________________________________________________________________________________

____________________________________________________________________________________

Contact Person: ____________________________ Position at School: ____________________________

Phone: ____________________________ Normal hours you may be reached: ____________________

Email:

____________________________________________________________________________________

Grade level(s) working in the garden: _____________ Number of students working in the garden: _____________

Student surveys are for students in 3rd grade and above. How many students will be gardening that are in 3rd grade and above?

____________________________________________________________________________________
Season(s) that you would like to garden  

☐ Spring  ☐ Summer  ☐ Fall

**PLANNING FOR YOUR SCHOOL GARDEN**
How do you see your school garden being utilized? What would you like to see it accomplish?

How do you plan to use the food grown in your schoolyard garden?

Who will be responsible for the overseeing your school garden? (We recommend at least two people at each school help coordinate gardening activities.)

Are there any other community supports that will be assisting you with your school garden (afterschool programs, parent groups, school clubs, neighborhood organizations, etc)?
Appendix D- School Board Proposal Power Point Presentation

Xavier School Garden Project

Proposed by S. Rejane Cytacki, 5th grade teacher, Janet Meyer, 4th grade teacher, and Loretta Craig, farmer/gardener
Appendix E - Raised Bed Pricing and Schematics

**Lumber:** Schutte Lumber  
3001 Southwest Blvd.  
KC, MO 64108  
[www.schuttelumber.com](http://www.schuttelumber.com)  
(816) 753-6262

Use Rough Cut Cedar 2”x8”

- **4’x12’ bed, 8’ tall:**
  - 2 boards 2”x8” 12’ long @ $25.60 per board = $51.20
  - 1 board 2”x8” 8’ long @ $17.07 per board = $17.07
  - **Total Lumber Cost = $68.27**

- **4’x8’ bed, 8’ tall:**
  - 3 boards 2”x8” 8’ long @ $17.07 per board = $51.21

**Soil:** Missouri Organic Recycling  
7700 E. 40 Highway  
KC, MO 64129  
[www.missouriorganic.com](http://www.missouriorganic.com)  
(816) 483-0908

Use Garden Mix: 50% soil/50% compost

- 1 cubic yard of Garden Mix = $30.95
  - Delivery Fee varies by site but is usually $40.00
  - Minimum of 3 cubic yard order for delivery
  - Maximum of 15 cubic yards of soil per delivery

- **4’x12’ bed 8’ tall uses 1.25 cubic yards of soil = $38.69**
- **4’x8’ bed 8’ tall uses .75 cubic yards of soil = $23.21**

**Total Cost per bed (lumber and soil):**

- **4’x12’ bed 8’ tall = $106.96 + soil delivery fee**
- **4’x8’ bed 8’ tall = $74.42 + soil delivery fee**
AND 16 GRAV NAILS (3 1/2" LONG)

EACH BED WILL NEED 2 SIDE PIECES + 2 END PIECES

2 X 8 END PIECE 4' LONG

2 X 8 SIDE PIECE
Statement of Goals and Objectives: The fifth grade science curriculum for the state of Kansas and the Archdiocese of Kansas City in Kansas includes Life Science, Physical Science and Earth Science. I am going to design this unit around the Life Science Standard which states: as a result of activities in grade 5, all students will apply process skills to explore and understand structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms. In order to further narrow my scope for my unit, I am going to focus on plants. This unit will take at least 2 weeks if not more time.

Objectives:

1. Students will investigate and understand the diversity, adaptation, and classification of plants.
2. Students will describe and understand the structure and function of roots, stems, and leaves.
3. Students will investigate and understand the processes of photosynthesis and respiration.
4. Students will observe plant growth and understand plant reproduction and lifecycles.

Activities:

Introduction: I will start the unit with a class brainstorm about what they know about plants, anything and everything. I will explain what our four main objectives are and that we will do several hands-on activities/experiments throughout the unit.

**Days 1-3** Will focus on Objective #1. Starting with the 5th Grade Science Book, *Science a Closer Look*, students will read pages 38, 48-49 to get a basic understanding of scientific classification of plants. During this reading we will discuss the different characteristics/adaptations found in plants that allow them to be classified. Together we will create a flowchart that shows the categories of vascular/nonvascular, seeds/no seeds, and angiosperms/gymnosperms.

**Activity #1** Comes from PLT Activity #9 pg. 45-49 entitled Planet Diversity. Students will be outside working in a study plot observing plants and animal life. I decided to leave the animals in because they are intricately connected in those mini-ecosystems of study plots. We will be
studying animal diversity later. Students will have to give a presentation to the class about their findings.

**Assessment:** Students will have a rubric assessment checklist pg 49 of PLT. I will check for the completeness of this as well as create a rubric that assesses their presentations.

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**Days 4-7** Will focus on Objective #2 and #3. In the 5th Grade science book we will read pg 50-51 entitled, “What are roots?” Students will perform a quick lab found in their book on page 50 that has them examine a carrot in order to identify the parts of a root.

After reading “What are stems?” pg 52-53 students will do
**Activity #2** found in PLT Activity #76 pg. 327-331 entitled Tree Cookies. Students will be able to look at slices of tree limbs to identify and understand what stems/branches of trees are made of: bark, phloem, cambium, xylem, and heartwood.

**Assessment:** Correctly answer the student page questions found on pg 331 and write a scenario that assesses the pattern of growth rings on pg 330.

**OTHER STANDARDS:** This addresses the 5th grade language arts writing standard/benchmarks on paragraphs and the writing process, and reading standard for critical and expository text.

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After reading “What are leaves?” pg. 54-56 students will do
**Activity #3** found in PLT Activity #64 pg. 273-276 entitled Looking at Leaves. Students will observe differences between 3 different types of leaves and their different adaptations. Students will be in groups of three and discuss their leaves. I will call each group to the front of the class using hula hoops as venn diagrams to organize their data. Two students will each have a hula hoop and will talk about their different leaves as they are hula hooping. The middle student must listen and find out what are the similarities.

**Assessment:** Using a paper venn diagram I will give the students two different leaves to compare and contrast different characteristics. Students then will write a compare and contrast paragraph about the two leaves. I will allow them to identify the tree it does come from. I will use the rubric found on page 275 to grade their paragraphs.

**OTHER STANDARDS:** This addresses the 5th grade language arts writing standard/benchmark on paragraphs and prewriting, and reading standard for critical and expository text.

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After reading “How are photosynthesis and respiration related?” pg. 54-56. Students will do
**Activity #4** found in PLT Activity #28 pg. 120-121 entitled Air Plants. Students will be able to observe photosynthesis through watching an aquatic plant create oxygen.

**Activity #5** found in PLT Activity #42 pg 182-184 entitled Sunlight and Shades of Green will allow them to observe the effects of a lack of sunlight on leaves and the process of photosynthesis. Because both activities are about photosynthesis I am just going to assess this once.

**Assessment:** Using the student paper from pg 122 students will create a diagram or poster about photosynthesis and have students creatively show how the process works and present it to the class. I will create a rubric to assess that they have the crucial steps in photosynthesis.
OTHER STANDARDS: Addresses the language arts standard/benchmarks about listening and speaking, reading standard for critical and expository text.

**Days 7-10** Will focus on Objective #4. Students will read pg 98-108 in their science books, a lesson entitled Plant Lifecycles. Students will do

**Activity #6** found in PLT Activity #43 Have seeds will travel pg. 185-187. This will help students identify seeds and various adaptations that tell how they are dispersed. I will also include as a precursor to our social studies unit on Native Americans, how they used seeds in their diet as well as in agriculture (Caduto).

**Assessment:** Students creatively create a seed character profile that includes how it is dispersed.

OTHER STANDARDS: Addresses the language arts writing standard on creative writing, and reading standard for critical and expository text. Social Studies Standard on History: Explain how various American Indians adapted to their environment in relationship to shelter and food.

**Activity #7** found in PLT Activity #41 How plants Grow pg. 179-181. Even though this activity is found towards the end of the unit- it will be started at the beginning because of the necessary 3 weeks for the seeds to germinate. This will focus on part of a plant’s lifecycle.

**Assessment:** Students will take this activity through the scientific process from hypothesis, data, to conclusion. I will have a rubric to grade their written report.

OTHER STANDARDS: Addresses the language arts writing technical and expository writing and research, math standards 3 geometry for measurement and 4 data for graphing.

Cumulative Final Assessments:

There is a test I will have to adapt and administer from my science textbook on plants. However, I will use the following activity as second assessment that students will have to problem solve and use all that they have learned about plants to complete.

**Activity #8** PLT Activity #10 pg. 50-53 entitled Charting Diversity addresses adaptations. I am adapting this one for plants. We will go over the activity for animals together, as an example, but students will have to create their own categories and characteristics for plants. Students will have to create 3 categories by which to identify their plants. For example Where it Lives, How it Reproduces, What do my leaves look like, How it gets its food, How People use it, or How it protects itself. Students will then have to create 4 characteristics in each category. For example if the category is how it reproduces. The characteristics would be has fruit, has bright flowers, has seeds that float, has spores. They will create cards and place them in the correct category bags and draw them out and write them on a chart three times. There will be two blank columns that say What am I? and How am I classified? This last category allows the
students to scientifically classify the plant that they have identified. Is it vascular or nonvascular? Has seeds or seedless? Is it an Angiosperm or Gymnosperm? Students will have to do research to find a plant that fits the 3 characteristics they chose and scientifically identify it. When finished they will have identified three different plants. My assessment will have a rubric based on if their characteristics accurately match their category. Also did they correctly identify 3 plants that fit their characteristics. Did they correctly classify them scientifically?

OTHER STANDARDS: Addresses the language arts standard under writing and research.

**Appendix G- Additional Resources**

Websites:


Books:


