HOW OUR GARDENS GROW

CULTIVATING NUTRITION & LEARNING THROUGH IDAHO SCHOOL GARDENS

IDAHO STATE DEPARTMENT OF EDUCATION

IDAHO CN P
CHILD NUTRITION PROGRAMS

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How Our Gardens Grow

Cultivating Nutrition and Learning Through Idaho School Gardens

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USDA

This book incorporates text and ideas from the following publications and organizations:

American Community Gardening Association, Digging Deeper, Kiefer and Kemple
California School Garden Network: Gardens for Learning
Life Lab Science Program, *LifeLab.org*
National Gardening Association, *kidsgardening.org*
UCD Children's Garden, Creating and Sustaining Your School Garden
University of Connecticut, Five Steps to Food Safe School Gardening

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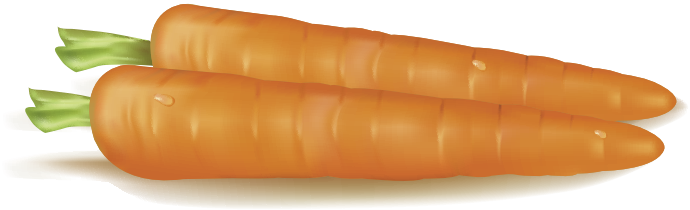
Designed by Luis Calás

Hagerman Elementary students observing plant growth.



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Introduction to School Gardening and Project Background

A school garden allows educators to incorporate hands-on learning, allowing students to become active participants in the learning process. School gardens come in all shapes and sizes. A school garden may be as small as a few pots on a windowsill or as large as an acre plot of vegetables in a schoolyard. A garden program can fit the diverse needs and resources of any school.

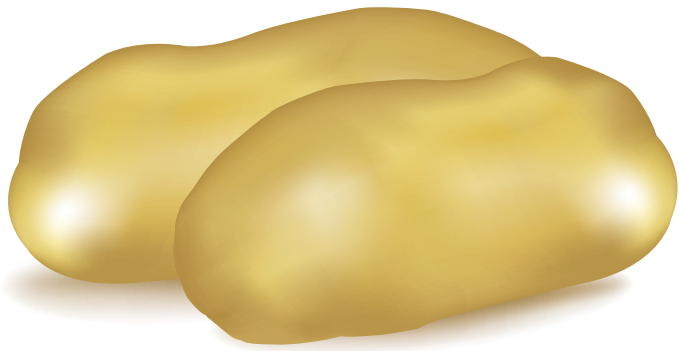
The Idaho State Department of Education, Child Nutrition Programs provided ten Idaho schools with School Garden Grants to enhance classroom curriculum, nutrition education, and increase students' interest and understanding of healthy foods. The Garden Grant schools had the option of either expanding current school garden programs or implementing a new school garden program with the funding.

To kick off this project, the Child Nutrition Programs and the Idaho Department of Agriculture partnered with Idaho Ag in the Classroom to teach 74 teachers throughout the state how to implement school gardens. Teachers at this workshop learned how to teach nutrition and other school curriculum through hands-on learning in school gardens.

Every teacher left the workshop with his or her own salad garden in a bucket to practice gardening skills during the summer and prepare for implementing school gardens the next school year.

The ten School Garden Grant sites implemented successful school gardening programs in their own unique way. These school garden sites each have wonderful stories to share about the positive effects the school gardens had on student learning. All ten gardens are featured in this book to provide schools throughout Idaho examples of successful techniques for implementing a school garden program. The School Garden key contact from each site is listed along with their tips and advice for other schools.

Successful school garden programs engage students in their development and design, have the support of school leadership, and are integrated with academic goals. The State Department of Education encourages schools throughout the state to implement school gardens to engage students in active learning and a healthy lifestyle.



Benefits of School Gardening

A school garden is a perfect tool to provide a hands-on learning experience for any academic subject. Studies show that school gardens have a positive impact on students' academic performance and their food choices.

Research strongly shows that garden-based education increases academic achievement and often results in higher test scores.

- Science achievement of students who participated in a hands-on (i.e., experiential) gardening program was higher than that of students who only engaged in classroom curriculum (Klemmer et al. 2005).
- Garden-based learning is associated with increased scores in science achievement tests in a controlled study (Smith and Motsenbocke 2005).
- School programs based on environmental education and hands-on learning resulted in reduced classroom management and discipline problems (Lieberman & Hoody 1998).

Studies have shown that garden-based nutrition education can significantly increase children's consumption of fresh fruits and vegetables.

- Eating habits and preferences are established early. School is a valuable venue for teaching good nutrition. Hands-on school gardening activities have shown a positive result in increasing children's knowledge of and preference for fruits and vegetables (Morris, et al. 2002; McAleese, 2007).
- Sixth-grade students involved in a garden-based nutrition education program increased their fruit and vegetable consumption by 2.5 servings per day, more than doubling their overall fruit and vegetable consumption. This study demonstrated the importance of combining nutrition education with hands-on gardening activities to influence nutrition-related behaviors (McAleese and Rankin 2007).
- Fourth-grade students who received garden-based nutrition education had improved knowledge of, preferences for, and attitudes toward fresh fruits and vegetables (Morris, Briggs and Zidenberg-Cherr 2002).

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Klemmer, C.D., T.M. Waliczek, and J.M. Zajicek. 2005. Growing Minds: The effect of a school gardening program on the science achievement of elementary students. HortTechnology, 15 (3) 448-452 *http://horttech.ashspublications.org*

Lieberman, G.A. and L. Hoody. Closing the achievement gap: using the environment as an integrating context for learning. Sacramento, CA: CA State Education and Environment Roundtable, 1998 *www.seer.org/pages/research*

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Benefits of School Gardens was adapted from the California School Garden Network Garden Based Learning Research Briefs *www.csgn.org/research/php*

Holy Spirit students planting seeds.

Connecting School Gardens to Learning

There are a variety of ways to integrate school gardening with classroom curriculum. Below are ideas on how to incorporate a variety of curricular topics into your school garden.

SCIENCE

Science is the most common subject area connected to the school garden. School gardens provide an opportunity for students to observe scientific processes first hand.

- Observing
- Measuring
- Comparing
- Predicting
- Testing
- Concluding
- Interpreting Data
- Forming Hypothesis
- Soils
- Seeds
- Temperature
- Weather
- Plant Growth
- Plant Anatomy
- Food Webs
- Classifying
- Sunlight
- Water Usage

SAMPLE SCIENCE ACTIVITY IDEAS:

- How does a plant grow? Observe the life cycles of plants using fast-growing plants in your classroom.
- Create a garden weather station. Record daily measurements and compare conditions with plant growth.
- What is pH? How does it affect plants? Use litmus paper or a test kit to test the pH of different soils. Investigate how plants respond to soils with different pH levels.

HISTORY AND SOCIAL STUDIES

Plants and food are important parts of Idaho and world history. The school garden provides opportunities to teach topics from food storing to specific historical events.

- Cultures
- Historical Events
- Current Events
- Agricultural Occupations
- Eating and Food Practices of Different Cultures
- Ag Economics

SAMPLE SOCIAL STUDIES ACTIVITY IDEAS:

- Research and report on cultural or ethnic differences in food consumption and gardening practices.
- Study the contribution of Native American foods and other cultures' foods to our history and diet. Grow samples in the school garden.
- As a class, develop garden rules and then vote on them.

ENGLISH / LANGUAGE ARTS

Language arts can be incorporated into the garden in a variety of ways and provide students with the opportunity to critically think about gardening and their experience in the school garden.

- Listening
- Speaking
- Interviewing
- Dramatizing
- Questioning
- Restating
- Summarizing
- Letter Writing
- Journaling
- Fictional Writing
- Recording Observations

SAMPLE LANGUAGE ARTS ACTIVITY IDEAS:

- Write letters to local merchants explaining the school gardening project and asking for donations.
- Write step-by-step instructions for common garden activities.
- Keep daily garden journals documenting observations, weather conditions, and classroom activities.

VISUAL AND PERFORMING ARTS

Nature can be very inspiring for young artists. Nature and the school garden can spark creativity in your students.

- Singing
- Instrumental Music
- Drama
- Charcoal Rubbings
- Pen & Ink
- Puppets
- Garden Gifts
- Vegetable Printing
- Vegetable Dyes
- Natural Collage
- Painting
- Sketching

SAMPLE ART ACTIVITY IDEAS:

- Make prints using paint and stamps made from various plant parts.
- Use leaves to make crayon rubbings or fossils in clay.
- Paint a class garden mural to hang in the hallway for parents' night.

MATH

School gardens provide a wide variety of opportunities to practice basic math activities. The garden helps make math relevant when students implement concepts they have learned in the classroom in a real-life garden setting.

- Geometry
- Computation
- Estimating
- Weighing
- Measuring
- Volume
- Area
- Time
- Plant Growth
- Recording
- Logging
- Graphing
- Charting

SAMPLE MATH ACTIVITY IDEAS:

- Measure the growth rates of plants and display results on different types of graphs. Make predictions regarding future growth. Use standard and non-standard units of measurement.
- Plan backward from a desired harvest date to determine when each crop should be planted.
- Measure your garden parameters and calculate the area. Use graph paper to make a map to scale of your garden.

HEALTH AND NUTRITION

School gardens have been shown to have a positive impact on student health. Use the school garden to encourage students to make healthy food choices and be physically active.

- Nutrition Education
- Foods and Diet
- Tool Safety
- Being Outdoors
- Walking
- Lifting
- Carrying
- Digging
- Planting
- Raking
- Dexterity and Balance

SAMPLE HEALTH ACTIVITY IDEAS:

- Study the nutritional value of the various crops in your garden.
- Keep food journals that highlight how many fruits and vegetables are eaten and describe any new produce tried.
- Have students estimate their calories burned while working in the garden.

Connecting School Gardens to the Cafeteria

The school breakfast and lunch programs are a perfect partnership for school gardens. Schools can grow food in the school garden that can be used in student meals. The USDA and the Idaho Department of Health and Welfare allow schools to serve food grown in school gardens to students. A letter from the Idaho Department of Health and Welfare, Office of Food Protection can be found in the appendix stating that "the practice of using produce grown in and harvested from a school garden is acceptable." The Office of Food Protection does recommend schools follow good food safety practices and that the growing and harvesting process should be monitored to protect against any possible contamination.

School Garden Food Safety

Food safety in your school garden program is very important. Microorganisms are a natural part of the environment and can be a problem whether you choose to use organic or conventional gardening methods.

You can reduce the levels of these microorganisms with good gardening and harvesting practices. Thorough washing and careful preparation will further reduce the level of the pathogens found on the outer surface of fresh fruits and vegetables.

Five Steps to Food Safe Gardening

Adapted from University of Connecticut's Five Steps to Food Safe School Gardening

Here are five simple steps school gardeners should follow to reduce the risk of foodborne illness when eating the produce from your school garden.

STEP 1: PREPARE THE GARDEN FOR PLANTING

- Be aware of your school's rules and regulations and how they pertain to your garden project.
- Locate vegetable gardens away from manure piles, well caps, garbage cans, septic systems, run-off from any potential sources of contamination, and areas where wildlife, farm animals, or pets roam.
- Use compost safely. Compost is the natural breakdown product of leaves, stems, manures and other organic materials. To be safe for gardening, your compost must reach a temperature of at least 130°F. Do not use any animal waste, including pet waste, meat scraps or dairy product waste in your compost bin.
- Work with the maintenance staff at the school to ensure safe practices on the school grounds near the garden.

STEP 2: MAINTAIN THE GARDEN

- Schools must water their gardens with water from an approved public water system. You can be sure that water from a municipal or public water system is safe.
- Surface water (lakes, ponds, rivers and streams) can be polluted by sewage or animal waste, fertilizers and pesticides, or chemicals from industry and should not be used.

- During the gardening season, keep cats, dogs and other pets out of the garden, as animal waste can be a source of bacteria, parasites and viruses.
- Students should always wash their hands after working in the garden, especially if handling compost.
- Items that can be safely composted from the school include: vegetable peelings, leaves, grass, and shredded paper.

STEP 3: HARVEST GARDEN PRODUCE

- Do not let students work in the garden when suffering from vomiting and/or diarrhea.
- Always wash your hands before and after harvesting fresh produce.
- Use clean gloves (that have not been used to stir compost or pull weeds) or clean hands when picking produce.
- Use clean, food-grade containers. Food-grade containers are made from materials designed specifically to safely hold food. Garbage bags, trash cans, and any containers that originally held chemicals such as household cleaners or pesticides are not food-grade.
- All tools used in the garden must be used solely in the garden and cleaned regularly.

STEP 4: STORE GARDEN PRODUCE

- Shake, rub or brush off any garden dirt with a paper towel or soft brush while still outside. Store unwashed produce in plastic bags or containers. Be sure to label the container in a way that makes it clear to others that it must be washed prior to use.
- Keep fruit and vegetable bins clean.
- Avoid damaged produce. Pre-existing cuts in fruits and vegetables can provide an entry for pathogens.
- Fresh fruits and vegetables needing refrigeration (melons, cut leafy greens, and cut tomatoes) can be stored at 40°F or less.
- Fresh fruits and vegetables stored at room temperature (onions, potatoes, whole tomatoes) should be in a cool, dry, pest-free, well-ventilated area separate from household chemicals.

STEP 5: PREPARING AND SERVING FRESH GARDEN PRODUCE

More often than not, we eat fresh fruits and vegetables raw, so we cannot rely on the heat of cooking to destroy pathogens that might be on our lettuce or tomatoes. It is important to prepare raw produce with food safety in mind.

- Always wash your hands before and after handling fresh produce.
- Rinse fresh fruits and vegetables under cool, running, potable, clean water even if you do not plan to eat the skin or rind.
- Never use soap, detergent, or bleach solution to wash fresh fruits or vegetables. These solutions can affect flavor and may not be safe to ingest.
- If you have leftover produce that has been cut, sliced, or cooked, store it in clean, airtight containers in the refrigerator at 40°F or less.

How to Get Started

There are several important steps to take before you start building your school garden. These include obtaining permission from school administrators, communicating with other school staff members, and creating a support network to work as a team on the school garden.

IMPORTANT TOPICS TO DISCUSS WITH YOUR SCHOOL ADMINISTRATOR(S):

- Find out who has the authority to approve the use of the land for the school garden; this varies at each district (this can range from the school principal to the school board).
- Let school administration know how many classes, students, teachers, etc. will be involved in the garden, the resources you plan to use, and how much class time you estimate will be spent in the garden.
- Make sure the administration is aware of the positive impact school gardens can have on the students' academic performance and overall health. Keep track of the positive impact your school garden is having on your students.
- Invite school administrators to be involved in the planning and implementation of the school garden.

THE SCHOOL MAINTENANCE DEPARTMENT IS AN IMPORTANT PARTNER IN SCHOOL GARDENS

- Inform the maintenance supervisor of the location of the proposed garden site.
- Find out where you will have access to water and if you can use that water for the garden. It is also helpful to find out if sprinklers that water the lawn in the summer will also cover the garden area.
- Clarify that the garden will be maintained by volunteers, students, and teaching staff and will not create more work for maintenance.

Possible Partners for School Gardens:

- Garden, plant and flower clubs and organizations
- Land trusts, environmental and conservation groups
- Scouts
- Seniors & Senior Centers
- 4-H Clubs
- FFA programs
- Boys and Girls clubs
- Church groups
- Colleges & Universities
- Hospitals and Health Care Facilities

Site Location Criteria Checklist

- Access: is the site located near those who will be using it most?
- Soil Quality: is the soil loose enough to hold seeds and compact enough to hold water?
- Safety: is the site safe from vandalism, dogs, foot traffic, etc.
- Size: does the site have space for a large number of children, tools, and activities?
- Sunlight: does the site receive at least eight hours of sun per day?
- Water: is there access to potable water nearby?
- Availability: is the site available now and can it remain available in future years and throughout different seasons?

WHERE TO LOOK FOR HELP AND ASSISTANCE

- Students can be great recruiters. Let them know what you need; they may have a parent, relative, or sibling that has just the right expertise or interest.
- Parents may have resources that will help you in building and maintaining your garden. Put a list of needs in school newsletters and the local paper. You may be surprised by how much help you get.
- Contact community and youth groups to partner on the garden. For example: the Girl Scouts and Boy Scouts, Chambers of Commerce, Lions Clubs, senior communities, etc.
- Ask local businesses to donate supplies or manpower. Many local building supply companies are willing to donate to school garden programs.
- Partner with the college extension services in your area. Almost every county in Idaho has University of Idaho Extension offices that can help with gardening questions and can sometimes offer classes to your students. To find your local extension agent, visit *http://www.extension.uidaho.edu/find.asp*.

Common Garden Tasks Throughout The Year

There are several tasks that will need to take place throughout the school year and the summer in order to have a successful school garden program. The list below provides some general tasks that will need to be completed each season. Make sure to include your students in as many of these tasks as possible so they can experience the entire garden process.

Fall

- Plant and harvest fall vegetable crops
- Gather leaves for composting
- Remove summer crops
- Plant cover crops
- Mulch to provide protection against winter weather

Winter

- Plan the spring garden
- Start seeds indoors
- Prune fruit trees and perennial shrubs

Spring

- Clean out winter debris
- Prepare soil for planting
- Transplant seedlings
- Direct sow seeds
- Harvest spring vegetables

Summer

- Plant summer vegetables or prepare garden for summer break
- Schedule volunteers to help with summer care
- Keep weeds under control
- Harvest vegetables

What to Do During Summer Break

Gardens are usually plentiful in the summer, but can also require a lot of work. So what do you do when school is out for the summer?

There are a variety of options; if you are creative, your summer garden can be a huge success.

- Focus on planting cool weather crops that produce fruit when school is in session in order to involve the students in the harvesting as much as possible.
- Involve summer school students in the school garden.
- Create an "Adopt a Garden" program. Allow families to adopt a section of the garden or a garden bed for the summer. The family gets the benefit of harvesting and eating the foods they grow during the summer months.
- Have student clubs take turns taking care of the garden in the summer time. They may be able to sell the produce raised as a fundraiser.
- Ask partners to help during the summer, for example scouting organizations, daycare centers or other local community programs.
- Ask for teacher and faculty volunteers and make a rotating schedule of garden summer tasks.

Types of Gardens

RAISED BEDS: Raised beds are elevated garden beds that allow plants to grow on a three- to four-foot wide area. Benefits of a raised bed include: greater food production, less compact soil, and efficient use of compost.

CONTAINER GARDENING: Container Gardens are very commonly used in schools. Almost any type of container can be used for container gardening as long as it holds soil, can drain water, and is large enough to accommodate the plants. Benefits of container gardens include: helps control weeds, garden area stays organized, can be shaped to fit any location, and helps prevent students from walking on plants.

There are options for gardening that can be done in small areas or inside the classroom:

FLOWER BOX GARDEN: garden plants can be included in normal flower boxes or barrels that may be found at the entrance of your building.

HERB GARDEN IN A BAG: herbs such as basil, chive, mint, parsley, sage, and dill can be planted in a medium-sized Ziploc Bag. Fill the bag with potting soil, plant seeds, add a few drops of water and set the bags in a window seal or sunny location.

SALAD IN A BUCKET: a small garden can be grown in any type of bucket. Have students bring in buckets or ask your foodservice department for leftover buckets. Drill two holes in the bottom of each bucket to help drain water. Plant lettuce, radishes, green onions, and a small patio tomato plant in the bucket. The students can take the buckets outside on sunny days, bring the buckets inside on cold days, and can take the bucket home in the summer.

Fun Ideas and Garden Themes

There are a variety of themes that can be incorporated into school gardens. Below are some examples:

THE THREE SISTERS GARDEN:

The Three Sisters Garden is a traditional Native American garden. The garden consists of corn, beans, and squash. The garden is planted in a ring, symbolizing the unending cycle of life.

NUTRITION EDUCATION GARDEN:

This garden represents the USDA's food pyramid. The garden can be in the shape of a triangle or just simply represent the different food groups in the pyramid in divided sections. Another nutrition focused garden could focus on a particular nutrient, for example Vitamin A.

THE PIZZA GARDEN

Students love pizza gardens, where they can grow a variety of toppings for pizzas. Many schools will grow toppings such as onions, peppers, tomatoes, garlic, oregano, and basil. Allow the students to use the foods grown to make their own personal pizza after harvest.

A CHILD'S GARDEN

This garden is designed for younger children with easy to grow vegetables such as lettuce, spinach, and peas.

THE EARTH GARDEN

This garden contains raised beds in the shape of each of the seven continents. Foods indigenous to each continent in the corresponding container are grown. This allows students to learn geography, agricultural history, economics, and development.

AMERICAN HISTORY GARDEN

Depict different geographic regions and agriculture patterns of the United States. Have students research how growing foods have changed throughout history.

Composting

Composting can be a great activity to include in your school garden. Composting allows schools to recycle paper and food scraps to use in the garden. Composting also is a great opportunity to teach a variety of scientific processes. Organic matter in the form of compost will help replenish nutrients and improve soil structure in your garden.

COMPOSTING REQUIRES THREE BASIC INGREDIENTS:

1. Brown Materials: dried leaves, dried grass, etc
2. Green Materials: grass clippings, vegetable waste, fruit scraps, garden leftovers, and coffee grounds
3. Water

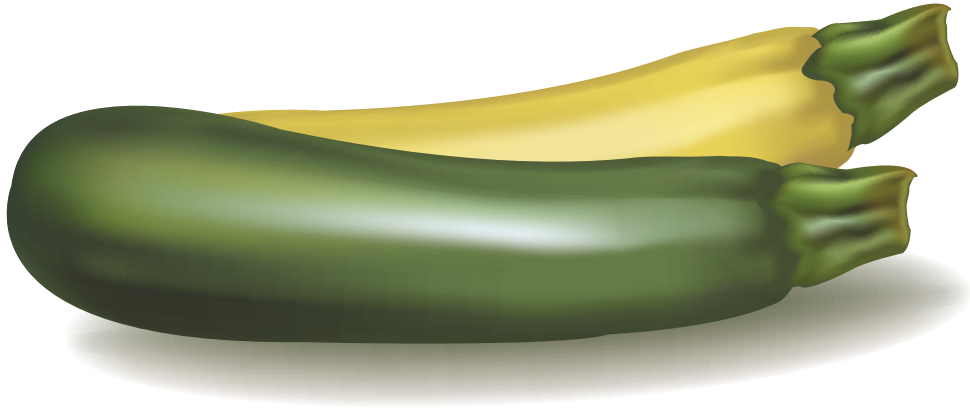
How to Build a Homemade Compost Tumbler

One of the keys to composting is aeration. A compost tumbler is inexpensive to make and simplifies this process. All you have to do is turn the tumbler to mix and aerate your compost. There are a variety of ways to build a compost tumbler. One example is below.

1. Find a 45-55 gallon plastic barrel. Make sure the barrel is “food grade” and has not held any toxic materials. You may have a parent in your school who will have a barrel to donate.
2. Cut a door in the barrel, large enough to put compost materials into the barrel. Screw hinges on the top side of the door and latches to close the door on the sides and bottom of the door (a variety of types of latches can be found at a hardware store).
3. Drill a couple of ½ inch holes in the barrel on the side opposite from the door to help with ventilation and drainage.
4. Attach handles on the barrel to help in turning the barrel.
5. To build the base that the compost barrel will sit on, attach four caster wheels to a platform (or to two 4x4s). Space the wheels far enough apart so they keep the barrel rolling. If the wheels are too far apart, the barrel will bottom out when full. If they are too narrow, the barrel will fall off the wheels.

School Garden Spotlight

The Idaho State Department of Education, Child Nutrition Programs provided ten schools throughout Idaho with USDA grants to implement or expand school gardens. School gardens are an excellent way to educate students on nutrition and a variety of other curricular topics and provide a positive hands-on learning environment that can teach students healthy skills that will last a lifetime. The ten School Garden Grant sites featured on the next several pages provide examples of many different ways to implement a school garden. This information has been gathered to provide other schools with the insight and information needed to start a successful school garden program.



The Athol school garden partnered with the school lunch program to serve garden fresh produce to students.

Athol Elementary started its school garden to enhance nutrition education with a hands-on, meaningful approach that engages students in learning and promotes lifelong nutrition habits. An additional goal of the school garden was to connect students with the community through the garden activities.

Garden Contact:
Susan Walker
Teacher
208-683-2231
swalker@lakeland272.org

Laying the Ground Work

To get the garden program going, Athol advertised the garden in the school newsletter, asking for assistance in any way people could help. A variety of donations for the garden were received from local businesses, teachers, parents and community members. The school developed a garden team that picked a location for the garden and planned garden activities. The students started seeds in the classroom that would be transplanted to the outdoor garden. The older students at the elementary helped build the garden beds, while the younger grades filled the boxes, spread bark, and planted plants.

Weeding Out Barriers: Garden Maintenance/ Sustainability

The garden did not require a lot of maintenance in the summer thanks to automatic sprinklers. Many teachers volunteered to help in the summer and the custodian helped keep an eye on the sprinklers watering the garden. As part of a Work to Learn program, fifth and sixth graders were able to apply for “upper management” roles in the garden, such as plant supervisor, weed control agent, and various other positions. The garden team leader selected a summer maintenance staff that took care of the garden with help from the local Girl Scouts.

Foods Grown in the Garden							
Carrots	Herbs	Radishes	Peppers	Broccoli	Tomatoes	Lettuce	Squash

Cultivating Knowledge

The Athol Garden had 150 students that participated in the garden, grades kindergarten through sixth. The school garden was incorporated into a variety of the core school subjects and served as a great teaching resource for the school.

In the future, the school plans to expand the garden to have one bed per grade so that each grade can choose its own produce to grow to meet each grade's individual interest and curricular focus.

Raising Nutrition Awareness

Teachers used the garden to teach nutrition education that was appropriate to each grade level. Nutrition lessons included the food pyramid, healthy eating habits, and identifying the relationship between nutrition and well-being. The students also had monthly projects incorporating nutrition awareness through science, math, and language arts activities.

The Athol foodservice employees were very willing to use garden produce, even though the kitchen is not a prep kitchen (food for school meals is brought in from another school). Teacher assistants helped cut up vegetables for lunch when extra help was needed. At times during the year, the school had a salad bar made up of lettuce, carrots, and yellow squash from the school garden.

Class	How Gardening Was Incorporated Into Learning
Math	Taste tested produce from garden and graphed likes and dislikes
Science	Researched growing seasons and composting
Language Arts	Practiced sentence writing about tasting experiences and favorite produce
Health	Researched vitamins and minerals in produce and benefits of each student's favorite vegetable
Computer	Used online resources to research nutrition and gardening topics

"I can't believe I like all these vegetables."
Athol Student

Homemade compost bins where students researched the scientific process of composting.

Growing Community Involvement

The Athol School Garden had a variety of partners that donated time and materials to the garden. Parents lent a helping hand, the local Girl Scouts helped sustain the garden during school breaks, and community members and local companies donated soil, bark, and compost bins.

The school was also able to give back to the community. The school donated produce from the garden to the local Food Bank to help provide members of the community with healthy, fresh foods. The school was able to donate 40 gallons of lettuce, zucchini, yellow squash, jalapenos, radishes, carrots, and tomatoes. The garden was also open to needy community members who were very excited to pick fresh vegetables.

Partnerships in the Garden	
Girl Scouts	Local Landscaper
School Foodservice	Community Members
Local Food Bank	Local Sawmill

"This is a great experience that can really help your community."
Athol Teacher

Seeds of Advice

Partners are a very important part of the school garden. Communicating with volunteers and having a clear schedule and plan helps make sure volunteers are used as efficiently as possible.

Schools need to make sure they plan for severe weather. Athol had a short growing season due to a long, cold winter. Late snows delayed planting. The garden location had to be moved due to high levels of snow and snow removal pilings. Be prepared with protective coverings for late snows and frost. There were some problems with plants freezing, but eventually the weather warmed and the garden took off.

It is important to consider your water supply before you pick your garden location. The water needs to be easily accessible and close to the garden location.

Make sure you get approval from your district office for all garden plans. Make sure all ideas are clear and understood by district administrators, maintenance departments, and staff.

Invite your community to help; the community will be a great resource to you if you ask. The students will tell their parents, and they will come forward with donations and assistance.

The garden may not end up being at all what you envisioned. You have to roll with the punches, but it will turn out fine.

Cabbage Contest

Each fourth grade student at Athol Elementary got to take a cabbage plant home for the summer. Students took pictures and weighed their cabbages for a growing contest. The school secretary entered a cabbage in the fair and won second place with a 25 pound cabbage.

Bonnie Plants–School Cabbage Program: Bonnie Plants will provide free cabbage plants to third grade students whose teachers sign up to participate in their Cabbage Program. The cabbages produce oversized heads, making the growing process very exciting for students. As part of the program, Bonnie gives a $1,000 award to one student in each state. For more information go to *www.bonnieplants.com/CabbageProgram/tabid/81/Default.aspx*.


Students' knowledge is growing in Athol

By MAUREEN DOLAN
Staff writer

GARDEN
From C1

North Idaho

A student compares the size of his hand to the size of a cabbage that was grown in the school's garden.

Garden Size:
240 square feet

Proximity to school:
on the east side of school building, between the street and the school

Watering Method:
automatic sprinklers

Type of Beds:
four raised beds plus tires stacked for tomato plants

Students took part in regular taste testing events, where they tried a variety of the produce they grew.

Many students and community members worked together to build the Bruneau School Garden.

Bruneau Elementary wanted to build a strong school community where students work together to produce a service for the school and the community. Through working in the garden, the students were able to improve in all areas of their education and learn to work together as a team on a very positive project.

BRUNEAU ELEMENTARY

BRUNEAU GRANDVIEW SCHOOL DISTRICT

Garden Contact:
JayDene Aquiso
Food Service Supervisor
208-845-2492
jaquiso@sd365.us

Laying the Ground Work

The garden team selected an area located behind the school for the garden site and the students designed the layout for the garden. The students used recycled milk cartons to start seeds in the classrooms and then transplanted the plants to their outside garden in the spring.

Weeding Out Barriers: Garden Maintenance/ Sustainability

In order to sustain its garden program, Bruneau Elementary sold garden starts and garden produce to earn funds that will support future garden expenses. Garden starts were sold during parent-teacher conferences and the harvested fruits and vegetables were sold to school food service for school meals and to the community.

During the summer months, each school staff member took responsibility for a week during the break and recruited students and parents to help water, weed, and pick produce. Parents took turns picking up 3-4 children to work in the garden during the summer months. Anything the students picked during the summer they could take home to share with their families.

Foods Grown in the Garden		
Carrots	Cucumbers	Potatoes
Corn	Radishes	Pumpkins
Broccoli	Cauliflower	Watermelon
Onions	Cabbage	Strawberries
Tomatoes	Peas	Cantaloupe
Green Beans	Beets	Sweet Potatoes

Class Involvement

The Bruneau School Garden involved all students in the elementary, grades kindergarten through sixth, as well as many teachers and the school principal. Bruneau was able to incorporate a variety of school subjects in the garden.

Raising Nutrition Awareness

After studying the food pyramid, students decided what foods were to be planted in the garden. During nutrition classes, teachers used the food pyramid and physical fitness pyramid to guide and teach children the proper ways to eat and exercise based on the foods they consume. The lessons connected these subjects with the garden by planning menus using foods grown in the garden.

Produce from the garden (green beans, tomatoes, melons, onions, corn, potatoes, beets, and radishes) was also served in the school lunch program to give the students the opportunity to eat the produce they had grown. The school also worked with families to encourage them to eat together and eat fresh, healthy foods.

Class	How Gardening Was Incorporated Into Learning
Math	Calculated proper dimensions and layout of beds, proper spacing, PH soil tests, weighed and measured plants, planned budget for garden, and recorded plant growth
Science	Identified and researched plants, plant parts, plant cycles, photosynthesis, and plant cells
English	Conducted research, completed garden writing assignments and wrote reports on the crops raised
Health/Nutrition	Researched food from plant to plate, making healthy choices, and became aware that fresh fruits and vegetables taste good
Service Learning	The students could choose to give some of the fruits and vegetables to older residents or family members in need of food in the community
Values	Students gained a great appreciation for team work, worked together to develop something on their own, increased awareness of the hard work it takes to get healthy food, and the dedication needed to complete all tasks

"I ate a tomato for the first time cause I grew it!"
1st Grade Student

Growing Community Involvement

Bruneau sent out a school newsletter at the beginning of the school year announcing the school garden project and asking parents and community members for donations of time, equipment, and supplies for the garden. Bruneau had a great response to this request and had a variety of partners involved in the school garden that helped make it a success. Parents and community members donated time, gardening tools, soil, fertilizer, equipment, and knowledge to the school garden. Idaho Power employees helped the older students build the garden beds and the D & B Supply store donated previous year's seed packets that the store was going to throw out due to expiration dates.

Partnerships in the Garden		
Community Members	School Food Service	Parents/PTO
High School Students	D & B Supply	Idaho Power

"The garden helps encourage a healthy lifestyle, not only for the students but for the families and community as well.
JayDene Aquiso

Seeds of Advice

Bruneau has reported that getting the community involved in the garden is priceless, especially when unexpected things happen. In the beginning of the garden development, the team had to move the raised beds to a different location and the community jumped in to donate their time with equipment and labor to help with this change.

To get through the summer heat, the garden team ended up putting in a different water system with a timer. This resulted in more efficient use of water, saving the district time and money. It is important to have a reliable and inexpensive water supply to support the garden's needs in hot weather.

JayDene, the Grant Facilitator, advises to not underestimate the student's involvement with the garden. For awhile she thought that the students really did not like the project because of the hard work in the spring, but she was so surprised at the positive way they reacted to the final products. She also recommends that you get plenty of staff on board to help with different areas of the project. "It is a big project; much too big for one person." Bruneau provided gift baskets of vegetables from the garden to people who volunteered their time in the garden to encourage continued involvement.

School Garden Open House and Back to School Night

Bruneau promoted the success of the school garden through a community open house and Back to School Night.

Every year, Bruneau Elementary holds a Back to School Night where parents come and meet their child's teacher and discuss plans and expectations for the upcoming school year. This year, Bruneau combined the Back to School Night with the School Garden Open House. Parents and community members were invited to tour the garden and were served a dinner made from a variety of produce grown in the garden to celebrate the garden's success. The meal included potatoes, watermelons, peas, strawberries, and homemade salsa from the garden.

This was the highest attendance the school had ever had at a Back to School Night and the district plans to incorporate the School Garden Open House and meal in future Back to School Nights.

"Students have been continuously eating out of the garden since the beginning of the school year."
Bruneau Teacher

Garden Size:
144 square feet

Proximity to school:
behind school building

Watering Method:
sprinkler irrigation system, city water

Type of Beds:
six raised beds and open ground

The Bruneau Garden flourished with a wide variety of vegetables from which students could choose.

Agriculture Education was a major component of the Hagerman Garden Program.

Hagerman wanted to take its existing high school greenhouse and create a facility that would be accessible to younger students as well as high school students. This provided an opportunity for students of all ages to work together on a positive project. Older students served as mentors to younger students who were new to gardening. This project provided hands-on experiences that got elementary students excited about growing and eating fresh vegetables.

Laying the Ground Work

The garden team used the existing Hagerman High School greenhouse, but added several additional tables inside the greenhouse that were accessible to young children. This provided working surfaces for the elementary students where classrooms could plant their own box of vegetables and herbs. Elementary classes were scheduled to spend time in the greenhouse throughout the year to provide the students with regular experience in the garden.

Garden Contact:
Daniel Knapp
Agriculture Science & Technology Instructor
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Weeding Out Barriers: Garden Maintenance/ Sustainability

Hagerman's existing greenhouse provided the district's garden program with a lot of versatility and year-round growing. Hagerman sold vegetable plant starts and flower

Foods Grown in the Garden		
Tomatoes	Carrots	Spinach
Snow Peas	Lettuce	Radishes
Herbs	Arugula	Peppers
Cucumbers	—	—
Additional Items Grown	Koi Fish	Baby Chicks
	Flower Baskets	Poinsettias

baskets in the spring and poinsettias for Christmas to raise money for the garden. The garden program also sold organic tomatoes and cucumbers to Idaho's Bounty, the local grocery store, and Hagerman School District Food Service to raise additional funds that will be used to grow the gardening program in future years.

Hagerman also incorporated the garden project into the summer school curriculum. The summer school students harvested the crops during the summer months when school was on break.

Cultivating Knowledge

The Hagerman School Garden incorporated all grades in the school district, kindergarten through twelfth grade. More than 225 students took part in garden activities throughout the school year. High school students were in charge of the overall care and maintenance of the plants in the greenhouse, and elementary students were given the opportunity to plant and harvest vegetables of their own. A variety of school classes incorporated lessons from the garden, including the business classes, insect biology, and health classes.

Class	How Gardening Was Incorporated Into Learning
Botany	Studied plant parts and plant life
Horticulture	Studied plant growth and maintenance
Math	Calculated depth and spacing requirements, designed planter boxes
Science	Studied plants and requirements for growing healthy plants
English	Completed writing assignments about the gardening experience
Insect Biology	Researched the use of beneficial insects in the garden in place of pesticides
Nutrition	Taught nutrition to 5th grade students, special education students, and in science classes
Business	Developed a garden product marketing program and vegetable label

Raising Nutrition Awareness

Hagerman elementary students had the opportunity to pick, wash, and eat the produce they grew. Food that was grown in the garden was used by the school cafeteria; the students picked the vegetables and took the fresh produce directly to the school kitchen to be served on the salad bar the day it was picked.

Pictures and placards are posted with vegetables when they are served in the cafeteria indicating which group of students cared for and harvested the vegetable, as well as nutrition information about the vegetable. The University of Idaho Extension provided classroom instruction to 3rd and 4th grade students and nutrition education was presented by teachers in all grades using My Pyramid For Kids resources.

Growing Community Involvement

The Future Farmers of America (FFA) Program was the lead organization in the Hagerman School Garden. The garden also incorporated the local 4-H program and University of Idaho Extension Educators. A variety of community members were frequently involved in the garden program through the plant sales and special garden events that took place during the school year.

Partnerships in the Garden			
School Foodservice	FFA	4H	U of I Extension

Seeds of Advice

Daniel, the Garden Facilitator, learned that it is important to stagger your planting schedule so a variety of classes can be involved in both planting and harvesting produce. Harvesting everything in one day is too overwhelming. Staggering harvest times helped provide fresh vegetables for the salad bar at the cafeteria every week. It took time to coordinate with the elementary school and the cafeteria to determine what was best as far as timing and quantity of harvested product, so it is important to communicate about this in the beginning. Even if a school doesn't have a green house, schools can use cold frames, plastic garden covers, and cold season crops to extend their growing season into the school year.

"In agriculture you are given resources. You need to take those resources and add value to them by producing and marketing a product. I try to teach that to my students."
Daniel Knapp,
Ag Science Teacher

Find Your Garden Niche

Hagerman found its niche in the gardening world and was able to have huge success with raising funds from the garden.

Hagerman decided to raise pesticide-free tomatoes that would be sold to customers looking for "all natural" produce. The school was able to work through Idaho's Bounty (an online local food market) to sell its produce to the Wood River Valley area at a premium price.

The students at Hagerman developed their own branded produce label so consumers could identify the produce grown by the school. The tomatoes with the Hagerman school produce label became very popular. Community members would wait at the door of the grocery store on the delivery day to make sure they could get some of the school-grown tomatoes.

The produce and plants ended up being a very successful fundraising program for the school. In just one year, they made $11,000 from plant sales and $5,000 from tomato and herb sales.

"What seemed to work best was having the students plant the seed, harvest the plant, and then immediately eat the vegetables. The kids walk away with a positive experience in eating vegetables."
Daniel Knapp, Ag Science Teacher

Garden Size:
44 foot by 96 foot

Proximity to school:
greenhouse located between high school and elementary

Watering Method:
hand watering

Type of Beds:
raised beds and hydroponic gardening

High School students mentored elementary students in the garden.

Hagerman raised a few animals as part of its program. Students raised and sold Koi fish and even started raising baby chicks in an incubator that was donated by a community member. The fish and baby chicks were a great fundraiser and provided a good experience for the students.

Hansen FFA students worked through the summer months to maintain the school garden.

The Hansen Agricultural Science & Technology teacher was looking for a plot of land for an "instructional farm" to complement the agriculture curriculum taught at the district. An area farmer had been farming three acres of school land, which he turned back over to the school. This area of land was used to start a very large school garden program for the school district. For the first year of the garden program, the district farmed one acre of the land and has plans to expand its school garden to the full three acres.

Laying the Ground Work

Hansen School District started its garden program by testing soil samples to make sure the field was ready for planting. The test results provided the district information on the recommended nutrients to add to the soil. This gave the district a good start on its garden and helped assure they had successful plant growth. Jeff Gerard, the Garden Facilitator, is confident that the $50 soil test increased the garden profits several hundred dollars.

The district let the community know that they were starting a garden and that it was an important part of the students' education. This resulted in community donations

Foods Grown in the Garden			
Okra	Peppers	Tomatoes	Artichoke
Cucumbers	Squash	Beans	Eggplant
Melons	Corn	Potatoes	Watermelon
Onions	Carrots	Cantaloupe	Honey

to the garden, including the donation of fertilizer from the local fertilizer dealer.

The district already had a greenhouse in place. Plants were started in the greenhouse and then transferred to the instructional farm field next to the elementary school.

Weeding Out Barriers: Garden Maintenance/ Sustainability

The Hansen FFA Program was the primary group of students in charge of the school garden. They harvested and sold produce and honey in the summer and fall, generating income to sustain the garden production for future years.

The school harvested and sold more than $2,500 in produce to the community. The produce sold included approximately 1,000 pounds of tomatoes, 400 pounds of peppers, 100 pounds of onions, 300 pounds of squash, 300 pounds of cucumbers, 100 pounds of beans, 1,000 ears of corn, and 25 melons. The high amount of produce grown required a lot of work from the students, but they were very dedicated and the program was a huge success.

FFA students were able to work in the garden in the summer to help pay for their trip to the National FFA Convention. The amount of time spent working in the garden in the summer equaled the amount of funding contributed towards the costs for their trip.

Class	How Gardening Was Incorporated Into Learning
Health/Nutrition	Studied nutrition education, fresh produce, and healthy lifestyles
Zoology/ Animal Science	Researched and managed bees and honey production
Greenhouse Production	Studied plants, plant propagation, transplanting, and harvesting
Ag Construction	Built vegetable display stands, bee hives, and signs
Intro to Agriculture	Completed record keeping and business planning tasks

Cultivating Knowledge

The Hansen school garden included students from all grades in the district, kindergarten through twelfth grade, as well as some additional elementary students from nearby districts who visited the garden. A variety of curricular topics were integrated into the school garden program, both in Agriculture Sciences and the school's core curriculum.

Raising Nutrition Awareness

Nutrition was taught in many classes and modeled in school lunches. Classes used the garden produce to learn about nutrition, healthy eating and healthy lifestyles. The school lunch program also used the garden produce and honey in school meals. The garden provided as much produce to the lunch program as the foodservice personnel could use. Tomatoes and peppers were the most

commonly used garden items in school meals. The produce was also served in the Summer Food Program to students during the summer months.

Growing Community Involvement

The Hansen School District feels as though community involvement and public awareness of the garden was very important to the garden's success. Community members and local businesses were happy to step up and make donations to the school garden.

Seeds of Advice

According to Jeff Gerard, the Hansen School Garden Facilitator, the most important thing in making a school garden a success is having students realize how critical it is to take responsibility for the summer months of gardening. Gerard accomplished this by informing students that profits made by selling produce would help pay their way to the National FFA Convention. The reward doesn't have to be that big, but that's what fit the group at Hansen.

Jeff Gerard also recommends minimizing difficult and laborious tasks such as weeding. Hansen accomplished this by using plastic mulch and drip lines under plant rows. Other than potato and carrot rows, students had no weeding to do.

Last but not least, you must have a Garden Facilitator who is willing to put in the time and work to organize and oversee the project. The Hansen Garden Facilitator recruited some responsible students to do much of the garden work, but the Garden Facilitator didn't take any lengthy vacations during the summer so that he could keep an eye on the garden as well.

Partnerships in the Garden		
School Foodservice	FFA	Local Businesses

Beekeeping

The Hansen School District established two beehives as part of the garden plot. Beekeeping, which helps with pollination of crops, became a project for the Zoology/ Animal Science students at Hansen High School. The Ag Structures class built the bee hives, and the Zoology students maintained the hives and harvested the honey from the hives.

The beekeeping project was an excellent learning opportunity for students of all ages. The high school students learned a lot about bees, honey, and beekeeping. The high school students then taught what they had learned to elementary students through beekeeping demonstrations.

The beekeeping demonstrations were a real hit with the elementary students. The students learned how honey is made, how it is removed from the honey combs, and even got to taste some fresh honey that they spun out of the honey combs.

The high school students were also able to raise extra money from fresh honey they sold at their garden stand.

"It was hard work, but I really learned a lot this year."
Hansen High School Student

Garden Size:
one acre, with plans to expand to 3.5 acres

Proximity to school:
field adjacent to the elementary school

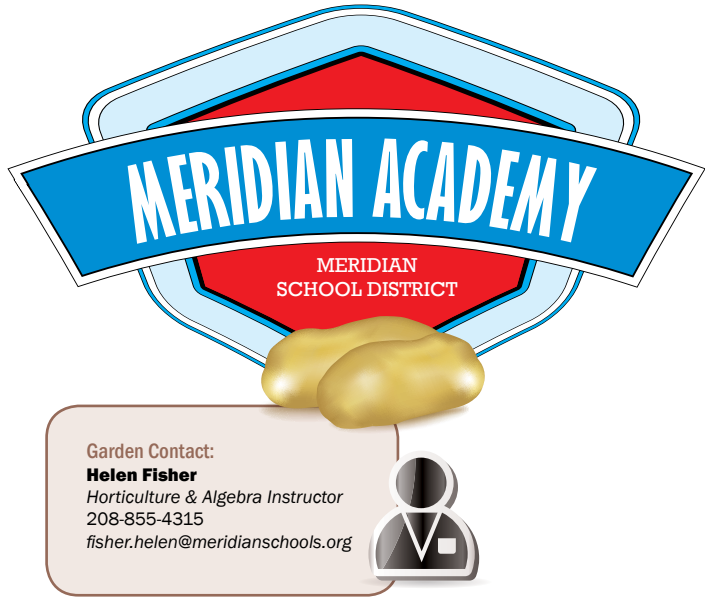
Watering Method:
drip irrigation

Type of Beds:
traditional beds

Hundreds of pounds of produce from the school garden were sold at a produce stand at the school.

Meridian Academy was able to efficiently use a small piece of land to grow a large variety of produce for students to try.

The Meridian Academy High School Garden introduced a positive approach to learning through hands-on education that the students enjoyed and flourished in. The garden not only helped students learn about growing and eating locally as a choice for personal and environmental health, but created new opportunities for all teachers to link mathematics, writing, and literature with ecology and cultural studies.



Laying the Ground Work

The garden team decided to use an undeveloped, weedy area of the school grounds adjacent to the main school building, where year-around water is available, to start their garden. A combination of raised garden beds and traditional beds were used to grow a variety of produce. Extra garden plants were also incorporated into the school's landscaping throughout the school campus. The students built cold frame boxes that were used to start early produce outdoors and starts were grown in the science and math classes and then transferred into the garden.

Weeding Out Barriers: Garden Maintenance/ Sustainability

Students in Horticulture and Ecology classes grew and maintained the vegetable garden and used the garden produce to create healthy snacks and meals. The

Foods Grown in the Garden		
Potatoes	Carrots	Lettuce
Beans	Spinach	Peas
Squash	Apple Trees	Tomatoes
Peppers	Onions	Egg Plant
Basil	Grapes	Raspberries
Blueberry Bushes	Broccoli	Cilantro
Lettuce	Arugula	Carrots

Horticulture teacher and a previous graduate from Meridian Academy maintained the garden during the summer break.

To help extend the growing season and provide the opportunity for students to be involved in a longer growing process, the school built garden covers out of PVC pipe and thick plastic to help protect the plants from cold weather.

Cultivating Knowledge

More than 150 students, grades nine through twelve, were involved in the school garden. The horticulture students were the primary caretakers of the garden, but many other teachers used the school garden as part of their curriculum.

Raising Nutrition Awareness

Students in Health classes used the garden produce to create healthy snacks. Students learned about foods and examined their own patterns of consumption. The students were trained to prepare and serve fresh snacks and drinks from fresh produce. The students also had several opportunities to consume the fresh produce grown in the school garden in school meals and as snacks.

Class	How Gardening Was Incorporated Into Learning
Horticulture	Studied botany, root systems, and plant growth
Ecology	Studied the environment and its effects on plants
Health	Studied healthy lifestyles and nutrition
Biology	Studied living matter, growth, and organisms
Earth Science	Studied soil, plants and growth
Photography	Photographed plants and garden area
Language Arts	Completed writing and reading assignments about nutrition and gardening
Math	Measured and tracked growth and weighed harvest yields
Art	Drew plant parts and root systems

"It's easier to learn with hands-on projects. We really like this garden."
Meridian Academy Student

Growing Community Involvement

The Meridian Academy School Garden received donations from a variety of community members and involved teachers, school maintenance employees, school administrators, and student alumni in the garden.

Partnerships in the Garden	
Teachers	Maintenance Crew
Community Members	Student Alumni

A student who had graduated from the Meridian Academy was able to manage the garden during the summer months. The student would visit the garden regularly with her two children and was able to use the produce grown in the garden to feed her family. The garden was a great experience for the student and her family; the student is now interested in pursuing a career in horticulture.

Seeds of Advice

Helen Fisher, the Grant Facilitator, recommends that schools go online to the National Gardening Association and KidsGardening.org for great advice on starting a school garden. She also recommends using the University of Idaho Extension Program, which can provide a variety of useful garden information.

Fisher recommends that schools have a plan to help minimize garden care. Managing weed growth is important. Containers and raised beds are easier to keep tidy and help keep weeds from competing with produce. The school used cardboard boxes to lay on top of the weedy surroundings of the garden. They covered the cardboard boxes with grass cuttings, this combination really helped cut back on weeding during the summer. Fisher also recommends using a drip irrigation system with a timer to help make sure adequate water is supplied to the garden during the hot summer months.

Schools need to plan ahead to make sure they are able to grow a variety of produce while school is in session. Meridian Academy was able to grow spinach and arugula in October and harvest in February. Schools can plant lettuce, spinach, carrots, and radishes in mid-March so that students can harvest these items towards the end of the school year.

Fisher recommends investing in covers for plant beds to help extend the growing season and protect crops. Plastic covers with PVC pipe frames are inexpensive to make and helped plants survive unexpected severe cold and wind.

Harvesting Great Flavor

The students at Meridian Academy had the opportunity to taste the produce grown in the school garden. Many students who wouldn't have normally consumed fresh vegetables were excited to build their own large salads from fresh produce they had grown and harvested.

- The Horticulture students made fresh garden salads on Fridays from the variety of lettuce and fresh produce they picked from the garden.
- Broccoli, spinach, peas, carrots and cilantro were supplied to the school lunch program for students' lunches. The garden was able to supply two days worth of school garden salads.
- The produce was also used to make potato and cheese burritos for the whole school, including salsa made from the produce in the garden.
- When there was extra produce available the students could take bags of extra vegetables home to share with their families.

The students were all very proud of the produce they had grown and enjoyed the fruits of their labor.

"There are a lot of vegetables that you can grow during the school year if you plan ahead and protect the plants from cold weather."
Helen Fisher, Garden Facilitator

Garden Size:
3150 square feet

Proximity to school:
adjacent to main school building

Watering Method:
drip irrigation on a timer

Type of Beds:
raised beds and traditional beds for pumpkins and potatoes

The students at this alternative high school were very proud of their hard work and the large amounts of great tasting produce they grew.

The Marsing School Garden is a community garden that involves students, families, and organizations throughout the community.

The Marsing garden is an outdoor classroom for Marsing School District students. Through the garden, students learn about nutrition, seed hybridization, propagation and heirloom preservation. The students are also involved in a variety of community service projects through the garden. The Marsing School Garden serves not only as a school garden, but a community garden, a Blue Star Memorial (tribute to US Armed Forces), and a Native Plant and Butterfly Garden.

Laying the Ground Work

Marsing School District had an existing garden that they wanted to expand so that they could involve more students in the gardening process. The High School FFA Program in Marsing also had a greenhouse in place that was used to grow plant starts. Once the plant starts in the greenhouse were ready to plant, each student was given a set of vegetables to plant in the outdoor garden.

Weeding Out Barriers: Garden Maintenance/ Sustainability

Many partners were used to help maintain the Marsing Garden during the summer months including the Owyhee Garden Club, University of Idaho Extension Office, and the local 4-H program. These organizations have agreed to continue to provide human resources to work with the youth and provide garden and nutrition education programs in partnership with the school garden.

Foods Grown in the Garden		
Tomatoes	Peppers	Melons
Squash	Broccoli	Cucumbers
Cauliflower	Herbs	Pears
Peaches	Apples	—

To raise funds to support future year's garden needs, the Marsing Garden Program sold vegetable starts to community members. More than 400 vegetable starts were sold during the school district's carnival. The district has also applied for additional gardening grants to support its program. Marsing received a Lowe's Toolbox Grant that will be used to expand the garden to involve more migrant and low-income families that live in federal housing across the street from the school.

Cultivating Knowledge

The Marsing School Garden involved both elementary students (grades three to five) and high school botany and horticulture students (grades 10-11). The University of Idaho 4-H Coordinators helped Marsing School District incorporate a variety of curricular topics in the garden program including nutrition, gardening techniques, reading, writing, math, art, and the computer lab.

A variety of students from the school district were also involved in the school garden outside the normal school day in afterschool programs such as the 21st Century After School Program, Summer School Programs, and school clubs.

Class	How Gardening Was Incorporated Into Learning
Math	Completed measuring and estimating
Photography	Took photos of the garden
English	Completed writing and journaling assignments based on the garden
Nutrition	Studied healthy eating
Art	Developed art for the garden and used garden materials for art projects
Cooking	Cooked vegetables and made homemade salsa

"We learn from our mistakes. When plants freeze, it turns into a great research project for the students."
Ken Price, Garden Facilitator

Raising Nutrition Awareness

The University of Idaho provided weekly classes on nutrition and healthy lifestyle choices to 3rd and 4th grade students in Marsing. These lessons incorporated regular trips to the garden and greenhouse. Teachers used 4H and FFA curriculum in teaching nutrition in conjunction with gardening activities to 10th and 11th graders. Nutrition was also taught during the Marsing "Farm Days" where FFA high school members demonstrated gardening techniques and taught nutrition to students and community members.

Growing Community Involvement

The Marsing School Garden also served as a community garden; therefore, there was extensive involvement from a variety of community members. The vast number of partnerships allowed Marsing to grow a large, successful garden that included a variety of educational opportunities.

Partnerships in the Garden		
High School Ag Class	District Maintenance Staff	U of I Extension Office
Owyhee Garden Club	FFA	4H Program
Summer School Students	Master Gardeners	—

Seeds of Advice

The Marsing Garden Team learned that having the water system hooked into city water was much more expensive than the district's irrigation water source. The garden team decided to improve the watering system plan by running a new line to the garden from the irrigation district water source. The school district provided the staff, expertise and equipment for the change. This taught the team it is important to keep communication open between partnerships.

The team also learned that it is important to make sure you have good parent and community involvement in your school garden. The Marsing Garden Facilitator recommends that schools assess parent and community member's desire to have a school garden and their involvement in the garden program. If a true desire from parents and community exists, then they need to be included in making assignments to get the project going.

The Marsing Garden Team also believes that it is a good idea to go to local school clubs, community clubs, Boy and Girl Scout organizations, and other community organizations to get them involved in the garden. Many of these organizations are looking for community service projects. For example, the school garden is a perfect Eagle Scout project.

Community Service

The Marsing School Garden Program was incorporated into a variety of community events to help gather support for the school garden program and to educate students and families.

- **Lights On! Fall Harvest Celebration:** This annual special event has activities that demonstrate the importance of gardening and nutrition to students and families.
- **Marsing Farm Days:** The FFA held Marsing Farm Days where the elementary students visit stations and learn about gardening and animals.
- **Spring Literacy Carnival:** The school garden program had a big booth at this carnival where students sold a variety of vegetables starts to families in the community.
- **Owyhee Garden Club (OGC):** The OGC worked in partnership with high school botany students in helping them prepare the garden for planting.
- **University of Idaho Extension:** The U of I Extension nutrition educators visited the school on a weekly basis to teach nutrition and gardening topics to students.

"Talk to other schools and find out their experiences in their school garden programs. Each school garden program is a little different, but they have all dealt with some basic challenges that you will probably also experience."
Ken Price, Garden Facilitator

Garden Size:
5016 square foot plus district greenhouse

Proximity to school:
between school district and elementary school

Watering Method:
drip system

Type of Beds:
traditional

Partnerships, like the University of Idaho Extension Office, were vital to the Marsing Garden Program.

Holy Spirit School
Garden Dedication

Holy Spirit Catholic School decided to start a school garden program because the school wanted to emphasize the following in its education system:

- work through service and giving,
- cooperative learning by doing,
- healthy lifestyle choices, and
- engagement in outdoor activity.

The school garden also opened the door for a wide variety of community involvement including: members of the church, parents, local schools in the area, and neighborhood citizens.

Garden Contact:
Dawn Fitzpatrick
Administrative Specialist
208-232-1196 x110
fitzpatrickda@holyspiritcs.com

Laying the Ground Work

The site chosen for the garden was an empty lot owned by the Holy Spirit Catholic Community with a water source. The plot provided the ideal location (right across from the school) for a school garden. Raised beds were chosen because it provided easier access for children of all ages. Each grade was provided a seed starter tray for their classroom, where students started the plants for the garden. The plants that the students raised in the classroom were transferred outside into the garden in the spring.

Weeding Out Barriers: Garden Maintenance/ Sustainability

The church community volunteered to work in the garden during summer and school breaks. The school garden team established a volunteer schedule to make sure they effectively used volunteers. The school garden produce

Foods Grown in the Garden		
Beans	Tomatoes	Carrots
Cucumbers	Lettuce	—

grown in the summer was used in the Summer Food Program. The employees working in this program also helped take care of the garden since they were at the school every day in the summer.

Students composted leftover school lunch and garden materials to help return nutrients to the garden, making sure the garden area could be sustained for many years. The fourth grade students were in charge of collecting compost materials and taking the materials out to the compost bins.

The school's annual auction donated a small percentage of the money earned to the school garden to keep it going in future years. The school has stated that since the garden has been put in place, it will take very little funding to keep it going.

Cultivating Knowledge

Holy Spirit incorporated all grades, kindergarten through sixth grade, in the garden. Each classroom was in charge of growing its own plant starts and taking care of a certain area of the garden. Each class could choose what they wanted to plant and how the students would take care of their plants. Some classes chose to use fertilizers while others did not. This provided a great opportunity to compare and contrast different methods of gardening.

A calendar was posted in every class noting when each classroom was scheduled to work in the garden. This made it very convenient for teachers to incorporate the garden time into their lesson plans and helped make sure that all garden tasks were completed on time.

Class	How Gardening Was Incorporated Into Learning
Nutrition	Studied My Pyramid lessons, healthy food choices, and lessons on the produce grown
Science	Studied how plants grow and what affects plant growth
Environmental Science	Studied soil science, biology, and geography related to the garden
Math	Measured and constructed garden site
Conservation	Became more aware of the environment and respecting the land
Cooking	Cooked vegetables and made homemade salsa

"These are the best tomatoes I have ever had. I didn't like tomatoes before this."
Third Grade Student

Raising Nutrition Awareness

Nutrition education was incorporated into a variety of classes at Holy Spirit. Teachers used My Pyramid for Kids and My Pyramid Food Choice Worksheets to teach about healthy eating. As produce was harvested, the students examined the different types of produce and teachers discussed the nutritional qualities and benefits that each particular vegetable provides.

The produce grown in the school garden was also served in school meals. The students were able to taste the vegetables they grew compared to store purchased vegetables in the school meals. The school-grown vegetables were a favorite among all students.

Growing Community Involvement

The community was a very important part of the Holy Spirit Garden. Community members helped in a variety of ways including donating materials for the garden and helping build garden beds.

Partnerships in the Garden		
Parents	Church Volunteers	Community Members

Seeds of Advice

In order to grow a garden during the school year, when students are in school, you have to plan ahead. You need to take into account the possibility of extended cold weather and an unusual rainy season. The Holy Spirit Garden had to deal with a late frost, but was still able to get the garden planted in time for students to enjoy the harvest.

Holy Spirit learned that it is important to have a good watering system that will take care of the garden during the hot summer months. The drip system that Holy Spirit first put in didn't work as effectively as planned, so the students had to supplement watering with a sprinkler on a timer.

A school garden is a fabulous learning opportunity for children. However, it does require participation from all the classroom teachers and parent volunteers. It is critical before beginning this process that everyone involved fully commits to the project. It is essential that there is a core group of volunteers who will monitor the garden for the summer.

Holy Spirit's goal was to develop a school garden that was sustainable. They wanted to guarantee the school garden would exist for future generations of children who will attend the school. The way to achieve sustainability is to make certain everyone involved truly believes in the project, is enthusiastic and committed. "Inch by inch and row by row to make the garden grow."

Incorporating Garden Produce into School Meals

The Holy Spirit Foodservice Director was on board with the school garden plans from the very beginning. It was a priority for the school to make sure that every student had the opportunity to taste the produce grown in the garden.

The students would harvest the garden produce, and the Foodservice Director would wash the produce and incorporate it into the following day's lunch menu. On the days foods were served from the garden, an announcement was made so the students knew they were eating the foods they had grown. Several teachers observed that students who don't normally eat their vegetables at lunch were eating their vegetables on days when garden produce was used in the school meals.

For the first time, students were choosing to eat their vegetables before their pizza or cookie, and many students were asking for second servings of vegetables.

The students were very proud of the produce they had grown and couldn't wait to eat the tasty vegetables they had raised.

"A school garden is a fabulous learning opportunity for children."
Holy Spirit Teacher

Garden Size:
300 square feet

Proximity to school:
across the street from school

Watering Method:
drip irrigation via a hose with a timer

Type of Beds:
raised beds

Holy Spirit teachers were instrumental in classroom participation.


Students learned to work together to grow their produce.
JMS
Garden
Established 2009

Jerome Middle School decided to start a school garden that would primarily be a project for students receiving Specialized Education. Some of the special education students were challenged when it came to classroom learning, but they were able to work productively in the school garden. One of the school's goals was to provide a skill which could be carried into adulthood as a source of independence for these students.

The general education population was also involved in the garden; there were teachers who took their classes out to work. These students also were mentors and helped the students with special needs to plant, maintain, and harvest vegetables and fruits.

Garden Contact:
Rhoda Hanway
Extended Resource Teacher
208-324-8134
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Laying the Ground Work

The garden team selected a site that was a section of lawn along the southwest edge of the school property. It already had an automatic watering system in place and was an area that was not used by the school or students. The school chose to build a fence around its garden to help protect the garden from vandalism and to define the borders of the garden.

Foods Grown in the Garden		
Squash	Tomatoes	Peppers
Chard	Melons	Herbs
Strawberries	Zucchini	Cucumbers

Weeding Out Barriers: Garden Maintenance/ Sustainability

The school had to plan ahead for adequate summer maintenance. Each member of the garden team selected a week during the summer to take care of the garden. Each teacher planned on recruiting students and parents to assist during the week they were in charge. Over the summer, the garden produce was donated to the Jerome Soup Kitchen to help families in the community.

The school planned on using fundraisers, produce sales, and donations from the community to finance the garden in the years after the grant.

Cultivating Knowledge

The majority of the time the garden was used by the special education students at Jerome Middle School, although the general education students participated in garden activities throughout the year as they had time.

Raising Nutrition Awareness

Health and Wellness classes focused on nutrition. Nutrition and healthy choices were also promoted in the school's newsletter and the bulletin board outside the special education classroom. The Jerome County Extension office also provided ongoing educational opportunities on health and nutrition for students throughout the school.

The garden produce was provided to the school's kitchen. The produce was prepared and served to students during lunch. A variety of side dishes were made to give the students the opportunity to try the produce grown. There

Class	How Gardening Was Incorporated Into Learning
Science	Studied plant life cycles and nutrition
Math	Worked on garden budgeting and measurements
Independent Living Skills	Developed skills for growing a garden and cooking with produce

Times-News, Twin Falls, Idaho

Jerome Middle School plants, studies own food

By Damon Hunzeker
Times-News writer

Special-needs students don't especially need a garden, but they now have one at Jerome Middle School.

The U.S. Department of Agriculture recently funded a $3,000 Teaching Nutrition Through Gardens grant to the school after special-education teacher Hanway

tion and get them eating healthier is to get them growing their own food ... but they've taught other topics there beyond nutrition," Martin said. "They've used the garden for math and science classes, journaling for English courses — even art classes, with the leaves ... It's been really neat to see some of the other stu- working with the

was a lot of extra zucchini that was used to make zucchini muffins that were sold as a fundraiser for the garden.

Growing Community Involvement

Jerome had a variety of partnerships that were involved in their garden program. Partners ranged from school personnel, to local businesses, to the local soup kitchen. The volunteers offered expertise, volunteered time and used the extra garden produce during the summer months.

Partnerships in the Garden		
Foodservice	Maintenance Crew	School Staff
Local Nursery	County Extension Agent	Master Gardeners
Local Companies	Home Depot	Jerome Soup Kitchen

Seeds of Advice

The Jerome Garden Facilitator, Rhoda Hanway, recommends that schools make sure they plan ahead when implementing a garden program. You may have to adjust for unplanned weather and need to have a back-up plan. It is good to start out by surveying your students to determine what to plant. Jerome learned that this needs to include education as to regional growing so students choose crops that grow in Idaho.

The Jerome foodservice personnel did a great job preparing raw vegetables or steamed vegetables and are working together to find ways to use vegetables in a variety of recipes next year (i.e. in main dishes).

Jerome learned it is important to provide more information to the community so there is more involvement in the school garden. The community is an excellent resource that would be an asset to any school garden program.

One of the most difficult issues to manage in the school garden is summer maintenance. Don't assume that all of your volunteers know how to harvest and care for the garden. In the future, Jerome will establish a specific list of what to do in the garden as well as some basic garden training for volunteers.

Jerome decided that the four plots they have are too big. In future years, the garden will be sectioned into eight smaller plots with teachers/classes responsible for one plot until summer break. This way, each class will be in charge of planting and maintaining its own section of the garden.

Gardening with Children with Special Needs

Although gardening is an exciting and engaging activity for all children, the opportunities for hands-on learning through exploration, experimentation and nurturing can be especially beneficial for children with special needs. Gardens provide "real world" examples and experiences that boost learning for students who thrive on practical instruction. Activities in the garden can be adapted for various skill levels and allow children to connect with nature and each other in unique and important ways. Gardening results in products the students can be proud of and share with others for praise and recognition.

The Jerome School Garden's focus was to help special education students build skills that they could use in adulthood, such as gardening, working with others, and cooking produce. This was an excellent opportunity for the Special Education Program in Jerome and will continue to be for years to come.

"We are so impressed at how well our students do in the garden."
Rhoda Hanway,
Extended Resource Teacher

Garden Size:
4900 square foot

Proximity to school:
behind junior high school

Watering Method:
automatic watering system

Type of Beds:
traditional and raised beds

McCain Middle School had a large area to allow them to start a huge garden where they could grow a wide variety of fruits and vegetables.

McCain Middle School had a large amount of land behind the school building that was not being used. The school decided to start a school garden to utilize this land and to connect the middle school students to their community, healthy food, and the outdoors. All three science teachers and the health teacher were involved in planning lessons and hands-on activities in the garden that met education standards for science and physical education at the middle school level. The teachers and school staff felt as though starting a garden at this low-income school would be a perfect opportunity to introduce new vegetables to students and to teach a skill that could last a lifetime.

Garden Contact:
Laura Thomason
Life Science Teacher/Department Head
208-642-4122
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Laying the Ground Work

The students planned the garden layout and started seedlings in their classrooms. Each grade level was assigned designated tasks in the garden. The teachers used the garden as a reward for students who turned in assignments and got their work done. The garden was a great incentive to encourage students to finish their class work.

Foods Grown in the Garden		
Cucumbers	Zucchini	Potatoes
Pumpkins	Lettuce	Tomatoes
Melons	Carrots	Berries

Weeding Out Barriers: Garden Maintenance/ Sustainability

Garden Team members, science club members, summer school students and general students took care of the garden during summer break. The school started a recycling program, with the help of parents and the community, to generate money for the following year's garden supplies. The school received an additional grant to purchase fruit trees to use as a border around the garden.

Class Cultivating Knowledge

More than 375 students, grades six through eight, were involved in the school garden. The primary garden lessons were taught in health and science classes for all grades. The school ran into some barriers with weather but used it as an opportunity to teach students about the effects of weather on plant growth.

The school has started a Garden Club that meets in the afternoon to plan garden work and events for those students who want to be more involved in the garden.

Class	How Gardening Was Incorporated Into Learning
Health	Studied the Food Pyramid and healthy lifestyles
Science	Studied the immune system, the effects of healthy food on the body, plant structures, seed germination, and insects

Weeks of wet weather played havoc on the McCain school garden but it was used as an opportunity to teach students about the effects of Mother Nature.

Raising Nutrition Awareness

Nutrition was taught in both Science and Health classes using the Food Pyramid. Teachers explained the body's immune system and how eating vegetables can improve health. Cooking teachers were also able to use the garden produce to teach students how to prepare fresh produce.

The students were allowed to bring baggies to take produce home to share with their families and some classes made salsa from the garden produce.

Growing Community Involvement

As the word spread about the school garden, community involvement and donations increased. Nunems Seed Company donated seed to the school, including some exciting seeds like purple carrots.

Partnerships in the Garden		
Teachers	Foodservice	Science Club
Summer School	Local Businesses	—

Seeds of Advice

Laura Thomason, the Garden Facilitator, recommends that schools be prepared for unreliable weather, test the garden soil to determine if it needs amendments, and be flexible with the garden layout to maximize space.

A school garden takes a lot of planning. Before you even start the garden, you need to know how large it will be. It is important to know where your water will come from, how it will be distributed and if it will cost you additional money.

The soil should be tested and additives added to have a desired planting medium. McCain found out too late that their soil was not balanced and the abundance of clay prevented root crops from growing to maturity.

McCain stresses that it is important to be organized and have a plan. The adult garden participants need to be committed. A garden takes a lot of work. It is important to determine how you will take care of the garden in the summer months. With a good plan and committed team members, your garden is sure to be a success.

"Students have been eating vegetables that they normally wouldn't eat."
McCain Teacher

Take Advantage of the Summer Months

Schools that offer summer school or the Summer Food Program have a great opportunity to use the garden and produce when the garden is at its peak.

Take advantage of the opportunity to use the garden to help connect the lessons you are teaching to summer school students to real life concepts. McCain Middle School was able to incorporate a variety of summer school lessons into the garden.

The summer school teachers even used the planning and building of tomato cages in their summer lessons. The students were given the question, "Which type of tomato cage best supports healthy plant growth?" Students were able to design their own tomato cage that they thought would be best for growing tomatoes.

Summer Feeding Programs that offer meals during the summer to students offer another great opportunity to use the produce you grow during the summer months in students' meals. Take advantage of this time of year and partner with your Summer Foodservice Staff to use a variety of freshly grown produce.

"It is important to be organized and have a good plan for your garden."
Laura Thomason,
Garden Facilitator

Garden Size:
464 square foot

Proximity to school:
adjacent to doors leading to science classes

Watering Method:
hose drip irrigation

Type of Beds:
raised beds and traditional beds

Students were involved in the garden from spreading top soil to building tomato cages, to making salsa.

All grades were involved in the garden from building the garden site to harvesting the foods. The school principal could be found working with students in the garden almost every day.

Centennial Elementary School's Principal Ron Rees is an avid gardener, and he wanted to share his gardening experience with his students. The goal of the Centennial garden was to have a gardening program that would enhance all students' interest in making healthy food choices. The school started out with a garden team that was led by Rees and included one teacher from every grade level to help assure that all grades in the elementary were involved in the school garden.

Garden Contact:
Ron Rees
Principal
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Laying the Ground Work

The team started its garden by preparing the soil making sure it was ready to support the growth of a variety of fruits and vegetables. The school felt as though fencing was necessary due to the fact that the garden was in close proximity to the playground area. The students were involved in all aspects of starting the garden from building raised beds to growing plant starts in recycled milk cartons in each classroom.

Weeding Out Barriers: Garden Maintenance/ Sustainability

Centennial Elementary used a team approach to manage the garden during holidays and the summer breaks. The district maintenance staff maintained the watering schedule during the summer, Principal Rees was in charge

Foods Grown in the Garden			
Carrots	Beets	Corn	Potatoes
Onions	Cucumbers	Lettuce	Grapes
Peas	Green Beans	Peppers	Raspberries
Radishes	Tomatoes	Squash	Fruit Trees

of the fertilization schedule, and two parent volunteer teams monitored the garden beds in conjunction with the PTA during the school year and during school breaks.

To raise money for future year's garden needs, the school sold plant starts during the Easter Egg Hunt. The school also collected and saved seeds from current garden plants to be used to plant the following year's garden.

Cultivating Knowledge

All 430 kindergarten through sixth grade students were involved in the Centennial Garden Program. The garden aisles were planned with wider rows to assure that all students, including students with disabilities or in wheelchairs could access all areas of the garden. Several teachers used plants from the garden to start classroom terrariums for students to study plants and animals on a daily basis in the classroom.

The school garden allowed the gifted and talented students at the elementary school to conduct in-depth research of water needs, fertilizers, plant spacing, root growth and plant production. The information learned from their research was used to develop gardening fact sheets to help families in the community implement successful home gardens.

Raising Nutrition Awareness

The school garden produce was used in both school meals and school snacks. The school Foodservice Department was able to use potatoes, beets, tomatoes, corn, onions,

Class	How Gardening Was Incorporated Into Learning
Health/Nutrition	Studied growing healthy food and healthy lifestyle choices
Science	Studied plant growth, insects, and plant break down
Math	Measured area, size, perimeters, and quantity
Community Service	Donated garden produce to 60+ local families

squash, cucumbers, peppers and other veggies from the garden in the school lunch program.

Nutrition lessons were taught in a variety of classes, emphasizing balanced nutrition in conjunction with growing vegetables for healthy snacks. Principal Rees incorporated nutrition into the garden by explaining the connection between garden produce and nutrition during student garden visits.

Growing Community Involvement

The Centennial garden was a huge success, with many fruits and vegetables to harvest. More than 1,100 pounds of vegetables were grown. Half of the total volume of vegetables grown in the garden were given to the local food bank, senior center, and needy families. The families in the community were very appreciative of the donation and the students were proud to help out those in need in the community.

To help encourage parental involvement in the garden, the PTA was given a tour of the garden and letters were sent home to parents to inform them of the garden project, which helped the school get a lot of support from parents.

Partnerships in the Garden		
PTA	Foodservice	Food Bank
Senior Center	Local Families	—

Seeds of Advice

Cold weather caused difficulty for many of the school gardens across the state this year, especially those gardens in north Idaho. Principal Rees recommends that garden teams take into consideration the possibility of extreme weather, which can delay planting and throw garden plans off schedule. Many schools found that using plastic covers to protect the garden was very helpful.

Ron also recommends picking garden volunteers who will be enthusiastic. This is picked up by the students, and they get excited about the garden too. He also recommends making sure all the students in the school participate in the garden in one way or other to get the entire school's buy in.

The Centennial Elementary School Garden incorporated a large variety of different fruits and vegetables. The school recommends buying plants and seed that produce vegetables of many varieties so the students have a variety to try. Planting some crops geared to fall harvest, like corn, works well with school schedules. Heirloom seeds are great to use so you can harvest seed supplies from year to year that will produce the same quality of crop results.

"We liked helping plant the plants and pick the food to eat."
Centennial Elementary Student

The Benefit of Enthusiastic Garden Leaders

Principal Rees has a passion for gardening and teaching students about his passion. He spent many hours in the school garden teaching students. During recess breaks, the principal could be found in the garden with a large group of elementary students lined up, waiting for their turn to work in the school garden with him.

Principal Rees' excitement for gardening and healthy foods had a huge impact on the students in his school. The students were enthusiastic about gardening and loved being in the garden with Mr. Rees. "I get hundreds of questions from students about the garden every day," says Mr. Rees. "This is one of my favorite parts of the day."

If you are out on the playground during recess at Centennial Elementary in the spring or fall, this is what you will hear and see in the garden:

Students lined up at the garden fence waiting to be invited to pick a vegetable to taste or to take back to class. Thirty students working in the garden for 10 minutes at a time, picking vegetables to taste or doing other garden chores and Mr. Rees teaching.

"Mr. Rees! Mr. Rees! What is this?" says a student pointing at a pepper plant.

"Mr. Rees! Can I pick one of these?" says another student pointing at a cantaloupe.

"We can't pick all the vegetables today, because we're having the garden vegetables for school lunch." Mr. Rees tells the students. "You will get to try these at lunch later this week, right now we need to take care of them."

This is definitely the ideal picture of an outdoor classroom. Principal Rees is constantly teaching students about the produce grown, what is affecting the growth of different foods, and how to know when a food is ready to be harvested. The students stand in awe listening to Principal Rees' lessons. There were so many students who wanted to work in the garden that garden time was sometimes used to reward classes for good behavior rather than pizza parties or other treats.

The Centennial Elementary garden was planted with the goal of every student having a hands-on experience in the garden. Every child that visited the garden got to pick their own cherry tomato to taste and if a lucky child was in the garden on the right day they may have the opportunity to harvest a pepper, a cucumber, a peach or even an ear of corn.

"Above all have fun! This is a great opportunity to have a positive experience with your students."
Ron Rees, Principal

The large variety of produce grown in the Centennial School Garden made the garden interesting for all students.

Garden Size:
6750 square foot

Proximity to school:
next to play ground

Watering Method:
sprinkler system connected to existing lines, will be adding a drip irrigation system

Type of Beds:
raised beds

APPENDIX

Vegetable Planting and Harvest Tips

TAKEN FROM THE GROWING CLASSROOM

Beans (Bush)

- Keep sowing every 2 weeks for constant supply of beans. Plants may stop producing beans during extreme heat but will begin again when temperatures decrease.
- Pick beans before you can see bean swelling in pod. Be sure to pick beans frequently (every 3-5 days) so the crop keeps producing.
- Sensitive to transplanting, consider sowing directly in garden.
- Eat raw, steamed, boiled, or pickled in vinegar.

Beans (Pole)

- A pole bean is a climbing variety and needs support of a pole, trellis or fence to grow.
- Pole beans often produce for a longer period than other beans.
- Pick beans before you can see bean swelling in pod.
- Pick beans frequently (every 3-5 days) for continual harvest.
- Sensitive to transplanting, consider sowing directly in garden.
- Eat raw, steamed, boiled, or pickled in vinegar.

Beans (Shelling)

- Shelling beans are grown until the bean and pod is dry. Let the beans completely dry on the stem before harvesting.
- Place dried bean pods on tarp and have kids stomp on them to remove pod or place in sack and strike sack to break beans from shell. Some kids like to hand shell each pod.
- These beans need to be cooked to eat.

Beets

- Sow seed directly in garden every 10 days for continual harvest.
- Thin plants when they are young.
- When beets are 1-2.5 inches in diameter, pull the roots.
- Beets will get woody when overly mature. Beets will keep in ground during frosts.
- Eat raw, pureed, marinated, stewed, or pickled in vinegar. Beet greens may be cooked like spinach.

Broccoli

- Broccoli is a cool season crop that grows best in full sun.
- Pick broccoli when heads form into tight, firm clusters.
- Cut off the head with 6 inches of stem attached. Side heads will form after first head is cut.
- Eat florets and stems raw, boiled, or steamed.

Brussels Sprouts

- Plant brussels sprouts in spring for a fall harvest. Exposure to frost improves flavor and sweetness.
- To harvest, twist sprouts off the stem when 1.5” wide and start with lower ones first. Remaining sprouts will keep on plants through part of winter.
- Eat boiled or baked.

Cabbage

- Plant in mid-summer for a fall harvest. In mild areas sow in fall for an early spring harvest.
- Harvest cabbage heads when they have formed tight, firm heads.
- Eat raw, boiled, steamed, or pickled as sauerkraut.

Carrots

- Sow seed directly in the garden. Thin crowded plants when small.
- Harvest carrots at almost any time in the growth cycle. Carrots will keep in the garden after the first frost, right up until ground freezes in winter.
- If needed, loosen carrots with digging fork before pulling.
- Eat raw, boiled, baked, pureed, or pickled in vinegar.

Cauliflower

- Tie outer leaves around head to protect cauliflower from the sun.
- Cauliflower is a cool season crop that is ready to harvest when the flowerets are tightly formed and dense. Cut the head off the main stem.
- Eat raw, cooked, boiled, or pureed.

Celery

- Requires a lot of nutrients and water.
- Harvest after the stalks have reached a foot or more.
- The inner stalks are more tender and taste best uncooked.

Chard

- Cut the outer leaves close to ground when 8-10” tall. Make sure to leave 4-6 leaves on the plant so it can continue to grow.

- Refrigerate chard for up to two weeks.
- Cook by boiling, steaming, or stir-frying.

Corn (Sweet)

- Sensitive to transplanting, consider sowing directly in garden.
- For good pollination plant in blocks at least 4 feet by 4 feet.
- Ears are ready to harvest about 20 days after the silks appear or when they turn brown.
- Peel back the husk and puncture a kernel with your fingernail. If the kernels are fat and juice is milky - white, the ear is ready for eating.
- Eat raw, steamed, or boiled.

Corn (Pop)

- Sensitive to transplanting, consider sowing directly in garden.
- Do not plant sweet corn in same garden with popcorn; the quality of sweet corn will be reduced if cross - pollinated by popcorn.
- Allow the kernels to dry in field as long as possible before winter rains.
- Harvest kernels when hard and the husks dry. Remove the husks and place the ears in mesh bags and hang in a warm, dry location.
- Once a week, shell a few kernels and try popping them; when test kernels are popping well store ears in cool, dark, dry place or remove kernels and store in airtight containers.

Cucumbers

- Mound soil into hills; plant 3 seeds per hill.
- Try growing cucumbers vertically on a trellis to increase air circulation and sunlight.
- Cucumbers are tastiest when harvested young before the seeds fully develop.
- Harvest lemon cucumbers when they are light green with just a blush of lemon color.
- Eat raw.

Eggplant

- In northern gardens where growing season is short, start with large transplants.
- Eggplant may develop a bitter flavor when grown in stressful conditions. Pick them while the skins are glossy and before seeds form inside.
- Cut stem, rather than pull from plant.
- Soak eggplant in water for 15 minutes or salt and let sit before cooking to reduce bitterness
- Eat baked, pureed, stuffed, or roasted.

Garlic

- Harvest when half to three-quarters of the leaves turn yellow - brown.
- Remove flower stalks to encourage efficient bulb growth.
- Loosen soil beneath bulb before pulling.
- Tie garlic together in bundles of 6 to 10 bulbs; hang them for four to six weeks in shaded, dry, area to cure.
- Mince and use in any dish as flavoring.

Kale

- Pluck leaves of kale on the outside of plant when leaves are 10” or longer.
- To keep the plants in production, avoid cutting center bud or leaves. Frost enhances the flavor.
- Eat pureed, boiled, steamed, or baked in a casserole.

Kohlrabi

- For best texture, harvest kohlrabi bulb when it reaches 2-3 inches in diameter. Bulbs become tougher as they grow and age.
- Pull or slice at base. Bulbous stem and leaves are edible, peel off skin around bulb before eating.
- Eat raw, steamed, boiled, or pureed.

Leeks

- Plant transplants when 4” high.
- Harvest leeks when they are about 1 inch in diameter and before they make their flower stalk.
- Slice open lengthwise and rinse inner leaves.
- Eat in soups, salads, baked dishes, or as a substitute for chive.

Lettuce

- Lettuce prefers cooler weather, in hot weather plant lettuce may go to seed prematurely (bolting).
- Harvest outer leaves of leaf lettuce early to encourage growth.
- Head lettuce is ready to harvest when heads are firm and tight.

Melons

- Sensitive to transplanting, consider sowing directly in garden. Melons grow best in hot weather. Harvesting the perfectly ripe melon is not always easy, refer to seed packet information for particular varieties.
- *Cantaloupes:* Pick when heavy and tan. Look for “netting” that is hard and raised and a crack that forms around the stem where it touches the fruit. The stem should slip easily

off the vines with a quick pull, but should not have fallen off by itself.
- *Honeydews:* Should have a slight yellow blush and get a bit softer at the blossom end.
- *Watermelons:* Develop a dull green cast and have a light patch at the bottom that changes from green to light yellow when mature. Also, the leaf on the tendril nearest the fruit turns brown and withers. The skin should be hard, difficult to pierce with a fingernail.
- Eat right out of the garden for ultimate satisfaction.

Onion

- Harvest when tops fall over and tips of leaves start to turn brown.
- Pull onions, shake off any soil, but do not wash them or pull off outside wrapper leaves. Store in dry area to cure for about a week.
- Use raw, blanched, boiled, baked, or in just about any dish.

Parsley

- Long germination and growth period.
- Soak seeds over night before planting.
- Harvest parsley as soon as plants are growing vigorously.
- Snip outer stems from plants; they will produce new growth.
- Parsley dries and freezes well. Can be eaten dried or fresh.

Peas

- Sensitive to transplanting, consider sowing directly in garden. Harvest peas daily to encourage vines to keep producing.
- Shelling Peas: Pick them when the pods are rounded and the peas have filled in the pod, but before they grow tough. Pods are not edible.
- *Snap Peas:* Pick when their edible pods begin to grow rounded, plump and juicy, but before they get tough.
- *Snow Peas:* Pick them when the pods have grown to 2-3 inches but are still flat.
- Eat raw, boiled, steamed, or stir - fried.

Peppers

- Sensitive to cold and harsh sun. In extreme heat, shade peppers by planting in a dense block.
- Peppers are edible when they're green, but most don't develop full flavor and mineral content until they turn from green to orange, yellow, or red.
- Eat raw, boiled, baked, stuffed, or stir-fried.

Potatoes

- When foliage starts to wither and die, the tubers should be fully grown and ready to harvest in a couple of weeks. Let soil dry down a bit to help cure potato skin and dig up with a spading fork before first frost. Do not wash potatoes before storing; rather just brush off dirt.
- Potatoes that are nicked or bruised during harvest don't store well, so eat as soon as possible.
- "New potatoes" can be harvested before the plant begins to die back. New potatoes should be washed and eaten shortly after harvest.
- Always cook potatoes, the raw starch is mostly indigestible. Boil, steam, or bake. Leaves are not edible.

Pumpkin

- Pumpkins prefer to be sown directly from seed in hills, 3 - 4 seeds per hill. Leave plenty of room for vine sprawl (6 feet for bush types and 10 to 12 feet between vining sorts).
- Do not pick pumpkins until the vine begins to turn brown and dry. Then cut vine 3 - 4 inches above pumpkin.
- Leave pumpkin in sun for a week or two to cure. Eat baked, boiled, or pureed. It is easiest to remove pumpkin flesh from skin after baking.

Radish

- Sow seed directly in garden every 10 days for continual harvest.
- Spring radishes should be checked frequently because of quick maturation. Will get woody when over - mature. Pull radish roots when 1-2 inches in diameter.
- Eat raw, stir-fried, or pickled in vinegar.

Spinach

- Sensitive to transplanting, consider sowing directly in garden.
- Plant every two weeks for continual harvest.
- Harvest larger outer leaves early in morning when crisp, or cut whole plant at base.
- Keep cool. Will "bolt" and go to seed in hot weather.
- Wash well. Eat raw, pureed, stir-fried, steamed, boiled, or in baked dishes.

Squash (Summer)

- Sensitive to transplanting, consider sowing directly in garden.
- Pick frequently when fruits are small. Skins

should be tender enough to poke fingernail through.
- Pick zucchini no larger than 6-7", patty pan squash at 2-3", and round zucchini at 3-4".
- Skin can be eaten along with the inside. Eat raw, boiled, baked, roasted, or in soups.

Squash (Winter)

- Sensitive to transplanting, consider sowing directly in garden.
- Grow throughout the season and harvest when plant materials die back in fall and the squash skin is hard.
- Most winter squash store well. After harvest, store in cool dry place.
- Eat boiled, baked, or pureed in soups. It is easiest to remove squash flesh from skin after baking.

Tomatoes

- Prefers warm weather although nighttime temperatures over 90 degrees can prevent fruiting.
- Harvest when fruits are full color.
- Eat raw, stuffed, stewed, boiled, baked, or pureed. Leaves are not edible.
- Great crop to use for taste test to compare fresh vs. store bought.

More information on planting and harvesting vegetables can be found at: *http://www.burpee.com*, *http://www.garden.org*, *http://gardening.about.com*, *http://www.reneesgarden.com*

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August 1, 2008

Heidi Martin
Coordinator, Child Nutrition Programs
Idaho Department of Education
650 W. State St
Boise, ID 83720

Dear Ms. Martin:

Thank you for your request for information regarding the use of produce grown in school gardens. This letter is to advise you that the practice of using produce grown in and harvested from a school garden is acceptable.

Along with all other good food safety practices, the growing and harvesting process should be monitored to protect against any possible contamination. Once harvested, the produce should be carefully washed with clear water prior to service. It is recommended that the temperature of the wash water be similar to the temperature of the produce.

Thank you for your efforts in providing safe food. Please feel free to contact me if you have any questions.

Sincerely,

Patrick L. Guzzle

SPRING VEGETABLES PLANTING GUIDE

Crop	Plant Seeds Indoors (weeks before or after last frost)	Plant seeds or Transplants Outdoors (weeks before or after last frost)	Planting Depth (inches)	Spading of Plants (Inches)	Days to Germination	Days to Harvest	Good Source of
Beans	3-4 weeks before	1-2 weeks after	1	6-8	4-10	60-80	Vit. C, fiber
Beets	*	2-4 weeks before	1/2	2-4	7-10	50-75	Greens high in Vit. A, C, iron, calcium
Broccoli	5-8 weeks before	5-8 weeks before	1/4	15-18	5-10	60-75	Vit. A, C, folate, calcium, magnesium, fiber
Cabbage	4-6 weeks before	5 weeks before	1/4	18	4-10	60+	Vit. C, fiber
Carrots	*	2-4 weeks before	1/4	2	10-17	60-80	Vit. A, fiber
Cauliflower	5-8 weeks before	1-2 weeks before	1/4	15-18	5-10	60-72	Vit. C, folate, potassium
Celery	8-10 weeks before	2-3 weeks before	1/4	6	7-12	75-100	Fiber
Corn	3-4 weeks before	1-2 weeks after	1	12-15	3-10	50-95	Thiamine, folate, potassium
Cucumbers	2-3 weeks before	1-2 weeks after	1	12-24	3-8	60-80	–
Garlic	*	6-weeks before	1/2	4-6	10-15	90-120	Vit. A, C, folate
Lettuce	3-4 weeks before	2-4 weeks before through 3 weeks after	1/4	10-12	4-10	45-60	Vit. A, K, calcium
Onions	*	3 weeks before through 2 weeks after	1/4	4	4-12	60-85	Vit. C
Peas	4-6 weeks before	4-6 weeks before through 2-3 weeks after	1	4	6-15	55-75	Protein, Vit. B1
Peppers	6-8 weeks before	1-3 weeks after	1/2	10-12	8-20	70+	Vit. C
Potatoes	*	4-6 weeks before	6	10-12	10-15	70+	Vit. C, B6, niacin, copper, potassium, fiber
Pumpkins	*	After last chance of frost	1	36	7-10	90+	–
Radishes	*	4-6 weeks before	1/4	1	3-10	25-40	–
Spinach	3-4 weeks before	3-6 week before	1/4	4-8	6-14	40-60	Vit. A, C, K, iron
Squash, Summer	*	1-4 weeks after	1	15-24	3-12	60-85	Vit. A, C, fiber
Squash, Winter	*	2 weeks after	1/2-1	24-36	4-10	80+	Vit. A, C, potassium, fiber

*Not recommended

TAKEN FROM GARDENS FOR LEARNING

SPRING FRUIT PLANTING GUIDE

Crop	Plant Seeds Indoors (weeks before or after last frost)	Plant seeds or Transplants Outdoors (weeks before or after last frost)	Planting Depth (inches)	Spading of Plants (Inches)	Days to Germination	Days to Harvest	Good Source of
Tomatoes	6-8 weeks before	2-4 weeks after	1/4-1/2	18-24	6-14	65-85	Vit. A, C, potassium, fiber
Cantaloupe	2 weeks before	2 weeks after	1	24-36	7-14	60-90	Vit. A, C, thiamine, potassium,
Strawberries (Alpine)	3-5 weeks before	*	1/8	6-8	20	85+	Vit. C, fiber
Watermelon	2 weeks before	2 weeks after	1/2-3/4	24-36	5-10	70-90	Vit. A, B6, C, thiamine

*Not recommended
TAKEN FROM GARDENS FOR LEARNING

SPRING HERB PLANTING GUIDE

Crop	Plant Seeds Indoors (weeks before or after last frost)	Plant seeds or Transplants Outdoors (weeks before or after last frost)	Planting Depth (inches)	Spading of Plants (Inches)	Days to Germination
Basil	4-6 weeks before	1-2 weeks after	1/8	6-12	7-10
Catnip	6 weeks before	2-4 weeks before	1/8	12-18	5-14
Chives	6 weeks before	After last chance of frost	1/4	8-12	5-14
Cilantro	*	After last chance of frost	1/2	12-18	10-15
Dill	*	1-2 weeks before	1/4	3-12	20-25
Oregano	6-8 weeks before	2-4 weeks after	1/8	8-12	8-14
Parsley	4-6 weeks before	1-2 weeks after	1/4	6	11-27
Sage	4 weeks before	After last chance of frost	1/4	12	14-21
Spearmint	6 weeks before	After last chance of frost	1/8	18	10-16
Thyme	8 week before	2 weeks after	1/8	6-12	20-30

*Not recommended

TAKEN FROM GARDENS FOR LEARNING

FALL PLANTING GUIDE

Crop	Plant Seeds Outdoors (weeks before first frost)	Planting Depth (inches)	Spacing of Plants (inches)	Days to Germination	Days to Harvest*	Good Source of
Beets	8-10 weeks before	1/2	2-4	7-10	50-75+	Greens high in Vit. A, C, iron, calcium
Broccoli	14-17 weeks before	1/4	15-18	5-10	60+	Vit. A, C, folate, calcium, magnesium, fiber
Cabbage	13-14 weeks before	1/4	18	4-10	60+	Vit. C, fiber
Carrots	13 weeks before	1/4	2	10-17	60+	Vit. A, fiber
Cauliflower	14 weeks before	1/4	15-18	5-10	60+	Vit. C, folate, potassium
Garlic	Sept-Nov with mulch	depth of clove	4-6		160-200	Vit. A, C, folate
Lettuce	6-8 weeks before	1/4	10-12	4-10	45-65	Vit. A, K, calcium
Onions	Depends on variety	1/4	4	4-12	60-120	Vit. C
Peas	12 weeks before	1	4	6-15	55+	Protein, Vit. B1
Radishes	7 weeks before	1/4	1	3-10	25+	–
Spinach	6-8 weeks before	1/4	4-8	6-14	40-75	Vit. A, C, K, iron
Strawberries (Alpine)	5-8 weeks before	1/8	4	20	Next spring	Vit. C, fiber

*Maturity rates of overwintering vegetables vary depending on temperature and available sunlight.
TAKEN FROM GARDENS FOR LEARNING

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CHILD NUTRITION PROGRAMS

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