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Developmentally Appropriate Gardening for Young Children

By Vicki Stoecklin

Adults already know the joys of gardening, a hobby that has seen an explosion of interest in recent years. But we're just starting to understand what the experience of gardening can mean for children. Whether based in a neighborhood or at a school, childcare center or summer camp, we're finding that children reap benefits from sowing seeds and helping plants grow. New programs have sprung up to introduce young children to gardening, supporting program goals that are similar among program types and the ages of children served. These programs - and yours if you choose to incorporate a garden into your programming - achieve goals that include environmental stewardship, personal growth/social skills, an integrated learning environment, nutrition/health, science education, practical living skills and just plain FUN.1

How the goals for your gardening program get implemented will depend on the ages of the children in your program. Developmentally appropriate gardening programs base their activities on sound principles of child development and learning. These principles are based on years of extensive research with young children and are used by professionals in the field of early education. While many current gardening books on the market provide a variety of different types of activities, they give very little support to teachers or horticulturists on how to understand the developmental needs of children and how to adapt activities to meet children's needs.

Principles of Developmentally Appropriate Gardening

The first principle - and an important foundation for developmentally appropriate gardening - is that children are active learners. The best teaching occurs when the emphasis is more on joining the child in hands-on interaction, play and discovery than on imparting knowledge. Children have a natural curiosity that requires direct sensory experience rather than conceptual generalization. The tendency of adults is to create activities from the adult perspective rather than finding ways to adapt adult activities to children's needs. If we as adults fail to provide an engaging hands-on experience for children, they will find their own, often inappropriate, way to interact with the garden. I have experienced this phenomenon many times in the children's garden where I

volunteer. When we do a garden tour, if it does not include enough "hands-on" experiences like stopping to collect, touch, taste and smell, I quickly lose the interest of the children and they find their own way to interact with the garden, like balancing on the garden rails, running through the beds and wandering to the next available space.

The second principle of developmentally appropriate gardening is that development occurs in children in an orderly sequence during the first nine years of life. All domains of development-physical, emotional, social, language and cognitive-change in a predictable way. Knowing typical child development for the age span that your program serves will provide a framework to guide teachers and horticulturists in preparing the learning environment and planning realistic goals and objectives. Age-appropriate gardening activities take into account children's differing cognitive capabilities and psychological needs.

The third principle is that experiences and activities that stimulate children's development should be presented in increasingly complex and organized ways. For example, children below age seven or eight are extremely visual in their orientation to the world, partially because, depending on the age of the child, they do not read or read well. A pitfall is to rely too much on verbal explanations of concepts rather than using visual representations of the same concepts, such as with pictures. I made this mistake myself with a group of eight-year-olds, and I failed to use a visual prop when I asked them to make rows for planting. They did not fully understand the concept of rows, much less know how to implement it in the soil as a team working together. Short-term memory and information processing is improved in the six-to-eight year olds in comparison with preschool children, but these skills are far from mature. For example, the adult capacity for short-term memory is seven chunks or bits of information.for preschoolers, five chunks of information, while 7-year-olds can usually retain six chunks of information.2

A fourth principle of developmentally appropriate gardening is that children need to be able to practice their newly acquired gardening skills. Since research shows that children's development occurs more rapidly with practice, how can we expand our gardening scope to include others who influence the child's choice of activities? How can horticulturists support teachers in the classroom and how, in turn, can teachers support parents, who determine what children do at home? Activities chosen and shared with teachers and parents must not only include information on the activity itself, but why it is important and how it can be implemented. For example, it's not enough to send a child home with a seed, you should also include an explanation about what children learn from planting seeds, a small baggie of potting soil and maybe a peat pot or information on what other types of recycled materials could be used as a pot. Many parents would not have the time or money to buy soil or pots, but may participate in the activity if it is fully explained to them and they have the resources at hand to do so. Developmentally appropriate gardening looks at how to support the child within the context of the classroom and family.

The last principle is that children have preferred or stronger modalities of learning. A variety of activities will support children with the contrasted learning styles of visual, auditory and tactile. Howard Gardner has taken this concept a step further by identifying at least eight kinds of intelligence in humans. The multiple intelligences include linguistic, logical-mathematical, musical, spatial, bodily kinesthetic, intrapersonal, interpersonal and naturalistic (the ability to read the natural environment). A variety of activities will allow children time to use their preferred modes of learning and also provide time for them to develop in areas where they might not be as strong.

Goals of Developmentally Appropriate Gardening

Now that we have explored the philosophy of developmentally appropriate gardening, let's go back to our gardening goals and more fully explore how these goals can be implemented for different age groups.

The first important goal of a gardening program is teaching environmental stewardship. Environmental education needs to start at an early stage with hands-on experiences with nature.3 Our tendency as a society is to assume that learning starts with public school, however, research clearly shows that value formation begins in children at ages two, three and four. It's difficult to teach children regard for nature at seven or eight if they haven't had the chance to fully understand what the concept means. Experiences with nature have taken on new meaning in our society, where children at home or at school have very little opportunity to explore the wonders of plants, bushes, trees and flowers. Many schools and child-care facilities are asphalt jungles, and many new homes have little landscaping beyond sod lawns.

Additional research in the new fields of eco-psychology and evolutionary psychology shows that if children do not have time to explore and fully understand nature, they are at danger for developing what is known as biophobia, an aversion to nature. I see this phenomenon manifested at the children's garden where I volunteer. Whether the children come from the suburbs or the inner-city schools, they have little to no understanding of the natural world. Their first impulse, when confronted with some natural element like an insect, is to first be afraid and then to kill whatever they have observed. Children must be allowed time in their early years to interact with nature and living elements before they can understand it well enough to want to preserve it.

A second goal of a gardening program is to provide activities for children to practice personal growth and social skills. Children are so proud of all of their accomplishments in the garden, even if it is as simple as watering. Many teacher-directed public schools provide very little opportunity for children to work together, although the skills of creativity, problem solving and teamwork are needed in the real world. The garden provides opportunities for children to work together cooperatively as a team to solve problems.

The third goal of a gardening program is to provide for multidisciplinary, active learning. Gardens are unsurpassed in providing a hands-on approach to seeking information, observing changes and learning skills. Gardens are constantly changing and highly attractive learning labs. While most teachers and horticulturists tend to stick to science and ecology lessons, the garden can also be used as a springboard for math skills like charting, mapping, graphing and counting; reading and writing skills like dictation, creating signage, storybook making, and reading books; social studies skills like foods of other cultures, feeding the homeless, map-making; and art skills like designing the garden, identifying colors and patterns, creating drawings, painting, papermaking and creating collages. Each of these garden activities will be based on the differing capabilities and needs of the age child for which it was created.

A fourth goal of a gardening program is to teach about nutrition and health. Children love to try new foods, especially when they have grown the food themselves or at least been involved in collecting the food source. A gardening program allows children the opportunity to make food choices based on new experiences.

A fifth goal of gardening programs is to provide opportunities for science education. Children can learn about interdependent plant and animal needs, photosynthesis, seed production, pests both harmful and beneficial, and composting.

The last two goals are really the most important. Gardening is fun and is a skill that can be used later in life in many ways. I have received thank-you letters from some of the children who come to the children's garden in the summer. The letters often speak about starting gardens at home now that their interest has been sparked, but the best part of the letters is that all the children talk about how much fun they had doing simple things like tasting fresh beets or cherry tomatoes, digging a sweet potato, picking berries or just watching the fish in the small pond. But, I think that my new friend Cherie says it more eloquently:

"Dear Vicki,
I had so much fun! The cherry tomatoes were the best! I thought the beets were kind of good. I never realy like beets that much. I'm going to ask my mom to have my own gardon. If she says yes I'll use the seed I picked."

Thanks,
Cherie
2nd grade

As someone who loves to garden, I've found that their enjoyment is equal to my own, in getting to introduce young people like Cherie to the pleasures of digging and planting and harvesting. That enjoyment, like the program goals, is something that is true wherever adults provide children the chance to interact with nature.

Footnotes:

1. Ocone, Lynn, The National Gardening Association Guide to Kids Gardening: A Complete Guide for Teachers, Parents and Youth Leaders, New York, Wiley Science, Editions, 1990.
2. Bredekamp, Sue and Copple, Carol, Developmentally Appropriate Practice in Early Childhood Programs, Washington, D.C., National Association for the Education of Young Children, 1997.
3. Moore, Robin C. and Hong, Herb H., Natural Learning: Creating Environments for Rediscovering Nature's Way of Teaching, Berkeley, CA., MIG Communication, 1997

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