

Willow tunnel at Oak Grove College in Worthing, England.



13 Comfortable Schoolyards: Seating, Microclimates, and Protection from the Elements

The asphalt playgrounds and grassy fields of most schoolyards are not particularly comfortable places; they offer little protection from sun, wind, and rain, and very little microclimate variation. Most have minimal seating, so students perch where they can, whether or not the space is comfortable or inviting.

Ecological schoolyards address these issues of physical comfort, while also making school grounds more useful for academic lessons and for fostering social interaction. Outdoor classrooms and seating areas of all different sizes enhance teach-

ing and learning and provide inviting venues for class and recess activities. Green schoolyard design increases the diversity of microclimates onsite by providing shady areas as well as sunny ones—allowing students to find the places where they feel most comfortable each day as the weather patterns and seasons change. (Figure 13.1) Some schools also create outdoor rain shelters that allow classes to meet outside or children to play in fresh air, when the weather is not ideal. Some schools may also install a bubbling fountain to cool a warm space or a windbreak to shelter cool, breezy locations.

FIGURE 13.1 *This schoolyard at Jefferson School in San Francisco, California, includes varied microclimates, so students can choose to be in sunny or shady areas.*





FIGURE 13.2 Large outdoor amphitheater at Martin Luther King Jr. Middle School in Berkeley, California.



FIGURE 13.3 The amphitheater at Prospect Sierra Elementary School in El Cerrito, California, creates a graceful transition between the upper portion of the grounds and a playground on its lower level. The wide, flat, artificial turf-covered terraces can seat the entire school—250 children and adults.

Outdoor Classroom Seating

Outdoor classrooms are designated schoolyard gathering places. Teachers use them to bring their students together to work on academic lessons. Students use them informally at recess, and the school community also uses these areas after school and for special events.

The largest outdoor classrooms and amphitheaters are venues for performances and large assemblies—seating several classes at a time or even the entire school. Most schools find that they need at least one gathering place that can ac-

commodate thirty students, so an entire class can sit comfortably outside together. Equally important are small seating areas with tables, which encourage students to collaborate on projects and provide places for children to eat outdoors during nice weather. Some schools also scatter small seats and benches around the yard to promote relaxation and quiet reflection and to provide a place for individuals to work alone on their lessons.

The principal outdoor classroom space in a given schoolyard should be conveniently located close to the school building to make it easy for faculty members to bring their teaching materials outside. It should be protected from the wind and direct sunlight, so everyone will be comfortable when seated. Some schools nestle their outdoor classrooms under leafy trees, and others use shade or rain canopies to provide shelter. Gazebos and other open-walled structures lend a sense of enclosure to outdoor seating areas, making them feel inviting and special. Outdoor classrooms, like their indoor counterparts, should be wheelchair accessible and connected to pathways that comply with standards set by the Americans with Disabilities Act.

Commercially made benches are available, but there are also countless inexpensive and simple ways to build seating. Thick tree trunks can be cut into rounds to create individual, movable “chairs” or sliced in half lengthwise and laid on the ground as massive benches. Boulders from a local quarry, while not inexpensive, are very sturdy and easy to arrange into almost any seating configuration. Straw bales are useful, too, as inexpensive, temporary seats.

Experiment with temporary seating arrangements by using inexpensive materials, such as logs and straw bales, to determine the ideal seating configuration for a given site before committing to more expensive, permanent solutions. Sometimes schools find that they like the rustic feel of straw and wood and decide to use “temporary” materials on a permanent basis—replacing individual bales or logs as they decay over time.

Designed to reflect and enhance the overall atmosphere or theme of schoolyard spaces, seating areas reinforce their school’s unique sense of place. For example, rustic building materials such as rough-hewn logs or boulders lend an informal, nature-oriented atmosphere to an outdoor learning space. Brick pavers, metal, and concrete, on the other hand, make the environment feel more formal and urban. Sculptural



FIGURE 13.4 The curving amphitheater at Lagunitas School in northern California is nestled in a gentle grade change near the classroom buildings. Parents used concrete blocks to construct it and filled the tiered seats with firmly-tamped decomposed granite (similar to course sand).¹

materials, such as cob (a mixture of clay, straw, and sand) and “earthbag benches” (filled with sand or soil), can be shaped by students into almost any form they imagine. (See chapter 8) A simple bench sculpted into a fairytale dragon, a school mascot, or a familiar animal transforms an ordinary schoolyard space into a memorable place.

Amphitheaters and other seating areas for large groups

Schoolyard seating areas vary greatly in cost, depending on the materials used and the design’s complexity. Because they require a relatively large amount of space, amphitheaters should be worked into a schoolyard master plan early in the design process. It is important to position them for easy access to the school’s entrances and exits along wheelchair accessible pathways, and to take advantage of local conditions onsite, such as topography and shade provided by mature trees.

Large seating areas: The large concrete amphitheater at Martin Luther King Jr. Middle School in Berkeley, California, was constructed along a steep hillside between the school’s playground and garden. (Figure 13.2) The top seating tier is at the same level as the school’s entrance and the bottom is flush with its lower playground. This wheelchair accessible amphitheater, built just before the school underwent a substantial renovation in 2001, served as the primary outdoor assembly space when the indoor facilities were under construction. It is now used for a variety of outdoor gatherings.



FIGURE 13.5 This beautiful forest amphitheater at Meadowbank School in New Zealand takes advantage of a natural hillside and its inviting shady setting.²

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FIGURE 13.6 This amphitheater at Ebchester Church of England School in Great Britain was carved directly into the hillside. The seats are planted with grass and the space between the tiers is the natural soil onsite.





FIGURE 13.7 At Bonny Doon School in Santa Cruz, California, a serene central seating area composed of large picnic tables is sheltered under a giant redwood tree. It serves as a gathering place for the school community, and can seat up to 100 people.



FIGURE 13.8 This hillside at Maridalen School was shaped to form a grassy amphitheater.



FIGURE 13.9 This inviting amphitheater at Peralta Elementary School in Oakland, California, is composed of two wide, curving concrete tiers, topped by a built-in flower bed. Children created the hand painted tiles that brighten the surface.³

Seating for several classes: Some schools find it useful to build smaller amphitheaters and gathering places that only seat a few classes at a time. These spaces are useful for small school assemblies, performances, and presentations, and are also comfortable places for individual classes to meet.

Maridalen School in Norway shaped a grassy hillside to act as an amphitheater and ringed the base of the hill with a wooden bench. The thoughtful design is a comfortable size for a few students, seated at the central picnic table, a single class, seated on the inner circle of benches, or for several classes, seated on the surrounding hill. A curving, hand-crafted fence completes the seating circle and defines the small amphitheater's "stage." (Figure 13.8 and 13.9)

Single-class seating

Space is at a premium in many schoolyards and there often isn't enough room to build an amphitheater. Most schools, however, have space for at least one outdoor instructional area that can seat 30 students, or a smaller space that can seat half a class. These seating areas may reflect the teachers' preferred instructional style—set up in a circle to encourage collaborative group discussions and eye contact among class members, or forward-facing to mimic a traditional indoor classroom, complete with a chalkboard. (Figures 13.10–13.12)

FIGURE 13.10 Nyvång School used cut log rounds to create an inviting, rustic, outdoor classroom in a natural setting.



FIGURE 13.11 Garden classes at Edna Maguire School in Mill Valley, California, sometimes meet in a simple seating circle made from painted pieces of concrete, sheltered by fruit trees.

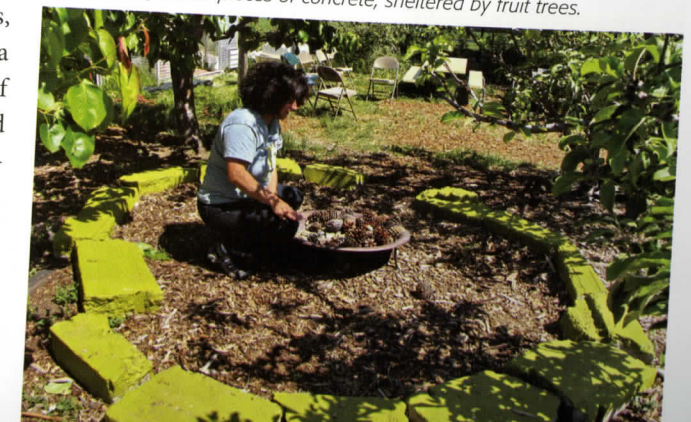




FIGURE 13.12 The garden classroom at Alice Fong Yu Alternative School in San Francisco, California, has forward-facing seats and a white board at the front under a tree. The seats are made from unadorned straw bales, arranged in two rows, placed directly on the woodchip-covered ground. At the beginning of each school year, new bales are purchased to refresh the seats and the old bales become garden mulch.



FIGURE 13.13 Picnic tables, large and small, are good places for students to work on outdoor projects or to collaborate in small groups.



Seating areas for small groups

At many schools, outdoor lessons are carried out in small groups of 5–10 students. Cozy meeting spaces for these groups can be tucked in among school garden beds or comfortably placed under trees or shady trellises. They can take the form of story circles (See chapter 9), large benches, picnic tables, and other clustered seating arrangements.

Small seating areas. Students who work on academic lessons outdoors appreciate small seating areas, particularly if they include a table or similar surface that can be used for writing. It is helpful to include a range of seating choices so several groups of students can work independently. (Figures 13.13–13.15)

Pocket-sized seating areas. Informal seating areas, intended for 2–4 people, invite conversation among students or school staff members. A single bench located in a comfortable and in-

FIGURE 13.14 This attractive table and chair set at Peralta School in Oakland, California, was made with an industrial cable spool for the table top and tree stumps for the table support and “chairs.” An umbrella provides shade and makes the setting more inviting.⁴



FIGURE 13.15 An undulating concrete seat wall at Hennigan School in Jamaica Plain, Massachusetts, is punctuated by well-placed circular forms that serve as worktables or impromptu stages.

viting place will serve this purpose—as will a loosely grouped collection of tree stumps, boulders, or benches. The smallest seat groupings fit nicely into peaceful, leafy corners or under arbors. (Figures 13.16–13.20)

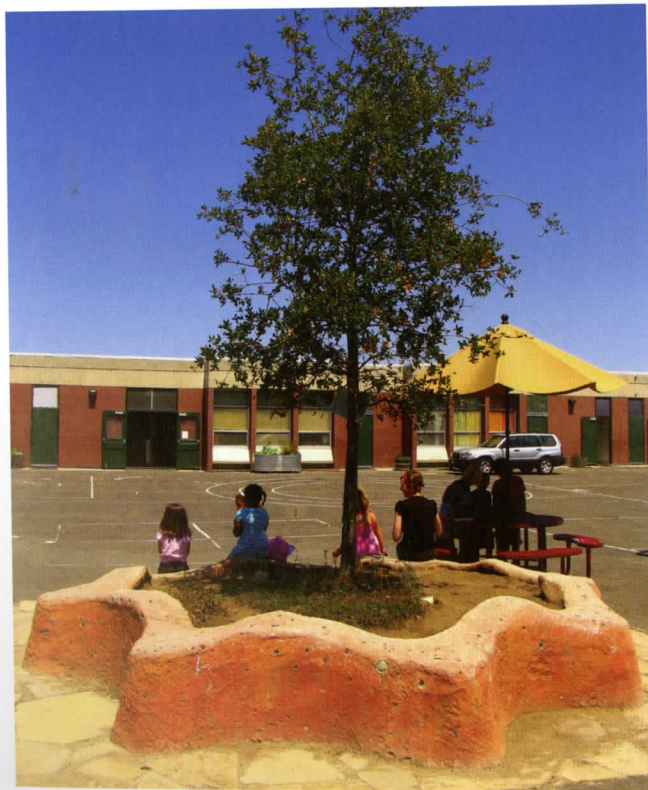
FIGURES 13.16 and 13.17 These seating nooks, made from clustered benches, invite small groups of children to gather for conversations with their friends. They are each positioned so the seated children can see the schoolyard and each other while they talk.





FIGURE 13.18 This charming, rustic meeting space at Ebchester Church of England School is composed of two well-placed benches along the school's forested nature trail.

FIGURE 13.20 A playful flower-shaped, concrete seat wall doubles as a raised planter at Grattan Elementary School in San Francisco, California. The curving edge of the planting bed, built by the school community, creates inviting niches that beckon small groups of children to gather informally during recess. As the tree grows and its branches extend out farther, this space will become even more comfortable and welcoming.



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FIGURE 13.19 The grounds at Galelei Primary School in Germany include this hand-crafted, cozy, wooden seating alcove that can accommodate a small group of children.

Whimsical seating

Sculpted creatures are “magnets” for children—and are almost guaranteed to inspire creativity within a school community. Mid-sized seating areas lend themselves well to sculptural forms, as do smaller benches. Some schools find local artists to help them create exciting benches— storybook characters, imaginary beasts, wild animals—and may involve the students in the building process. (Figures 13.21–13.24)

Outdoor Seating Areas that Promote Rest, Relaxation, and Remembrance During the School Day

Most American schoolyards are designed with wide open spaces, perfect for ball games and other types of lively activities that involve running, yelling, and exuberant play. While physical activity is something to encourage among today's sedentary student population, not every child feels equally comfortable in this type of play environment—and there are times when even

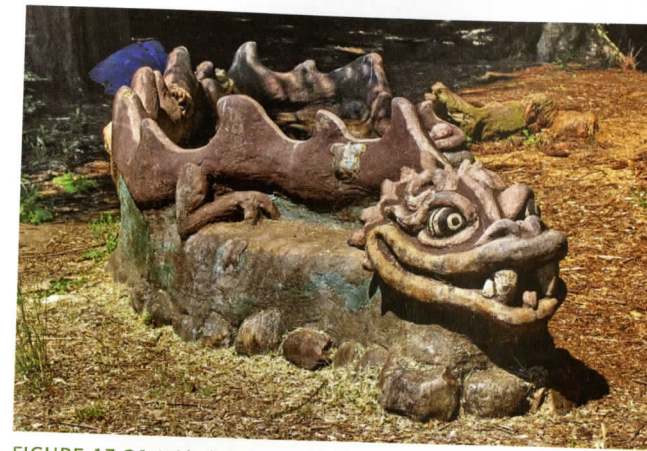


FIGURE 13.21 With the help of teachers and a local artist, students at Salmon Creek School in Occidental, California, built a stunning cob bench in the shape of a dragon.⁵



FIGURE 13.22 This lively, panther-themed, cob bench at West Portal School in San Francisco, California, was created by school volunteers, with the help of a local non-profit organization.⁶



FIGURE 13.23 The Oakland Zoo in California is home to a curving concrete snake bench, whose sinuous form invites passing children to use it as a balance beam. The graduated thickness of the snake's body results in a bench with varying heights, so both adults and children feel comfortable when seated.



FIGURE 13.24 This carved wooden bench at the Bay Area Discovery Museum in Sausalito, California, beckons children to climb into the open cavity and play imaginative games.⁷

FIGURE 13.25 A leafy arbor shelters a small bench at Cowick First School in England. Fragrant flowering vines cascade around it, providing a sense of privacy and calm within the busy schoolyard.



the most energetic child needs some quiet “down time” to recharge. Teachers, too, benefit from the addition of quiet refuges in schoolyard settings—places to relax while eating their lunch, supervising children, or preparing for a lesson.

Quiet zones

Creating a relaxing environment that allows a few moments of respite from a chaotic playground need not be complicated. The simplest quiet zones may be a comfortable chair or bench in a leafy garden space, somewhat off the beaten path or away from active play areas. (Figure 13.25)



FIGURE 13.26 The large “quiet zone” at the edge of Ulloa School’s busy playground in San Francisco is filled with thriving plants and picnic table seating. Students and teachers who need a break from the fast paced action on the rest of the schoolyard step inside this peaceful garden to relax.

FIGURE 13.27 Peralta School in Oakland, California, removed a large portion of playground asphalt to create an area for nature play activities and gardening. This green space includes informal places for students to comfortably sit and talk, as well as garden beds for bug hunting and grass to run their fingers through.⁸



Some schools have developed special school gardens specifically intended to promote reflection and allow peaceful activities. These spaces usually have comfortable seating, and they are often set apart from the rest of the yard in some way. Many of them also create a sense of enclosure through the judicious use of overhanging plants, arbors, and choice of location. (Figures 13.26 and 13.27)

Memorial gardens and other spaces for quiet reflection

Some schools commemorate the passing of a student, teacher, or class pet by planting a memorial garden. The somber tone of memorial gardens promotes quiet reflection and offers a place for rest and relaxation as well. (Figures 13.28–13.30)

Shelters for Outdoor Classrooms and Playground Spaces

Outdoor shelters enhance learning and play environments, enabling students to seek the most comfortable outdoor places as the weather changes. Year-round protection from the sun’s rays is a priority for schools in many countries, who seek to



FIGURE 13.28 This peaceful memorial garden at Ebchester Church of England School in England is a lovely place for quiet reflection and small group gatherings.

FIGURE 13.29 Leadgate Infant School planted a tree as a memorial to a student who died. The circular bench around the tree provides a restful seating area for the schoolyard, and also protects the young tree.



FIGURE 13.30 Tuna School in Sweden has a small, peaceful garden space dedicated to remembering class pets. This sign reads, “Hero Marcus,” in honor of the class’s pet rabbit.





FIGURE 13.31 This shady patio at Sequoia Elementary School in Oakland, California, includes mature, deciduous trees. Seat walls under the trees offer a cool retreat on warm days; sunny picnic tables offer a warmer environment on cooler days.

shield their students from skin cancer risk. The simplest solution is to create more shade by planting trees with wide, leafy canopies. Trees take a long time to grow, however, and schools often need more immediate sun protection. To address this concern and improve comfort on hot days, some schools use shade structures over their seating and play areas. They range

from simple, portable umbrellas to more elaborate, permanently installed canopies and roofs. The permanent shelters are also useful during rainy and even snowy weather.

Shade trees

Deciduous trees are particularly helpful in creating comfortable microclimates as they provide shade when it is warm and let the sun in during cooler months. (Figures 13.31 and 13.32)

FIGURE 13.32 Brookside School in San Anselmo, California, shelters its outdoor classroom in deep shade provided by a small grove of redwood trees. This cooler location is particularly pleasant during hot spring and fall days.



FIGURE 13.33 Leadgate School in England uses portable shade umbrellas to cast shade around their picnic tables.



FIGURE 13.34 Salmon Creek School has a large seating area with four picnic tables, sheltered by a permanent structure of heavy wooden beams. During warm spring and fall weather, the school hangs temporary bamboo screens on top of the canopy to cool the classroom space below.



FIGURE 13.35 Rooftop School in San Francisco, California, uses a lightweight canopy to shelter an outdoor teaching space from the sun and light rain. Shelters like this one are intended to be portable, but some are sturdy enough to leave in place for years if the weather is mild.

Portable shade

In some climates, warm days alternate with cooler ones, making it useful to have movable shade canopies to shelter outdoor classroom spaces when needed. (Figures 13.33–13.35)

Open-sided gazebos

Airy gazebos are useful schoolyard amenities. Many have open walls and trellises overhead for growing vines or hanging shade

cloths when needed. Vine-covered structures bathe the seating areas below in dappled light and light shade, adding variety to onsite microclimates. Gazebo structures are particularly comfortable and appealing because they offer both an inviting sense of enclosure and the ability to see and enjoy the surrounding landscape through the open walls. (Figures 13.36–13.38)

Some outdoor classroom shelters are made from permanent, solid roof materials that provide protection from both

FIGURE 13.36 This small gazebo at Rosa Parks School in Berkeley, California, was built by parent volunteers. The redwood structure can accommodate ten elementary school students and gives the garden teacher a cozy place to assemble her class.⁹





FIGURE 13.37 In 2003 the Edible Schoolyard at Martin Luther King Jr. Middle School in Berkeley, California, built a “ramada” (gazebo) from heavy, round wooden beams. Its open walls and ceiling are lushly covered with vine crops including kiwis and squash, which create a comfortable sense of enclosure and dappled light.



FIGURE 13.38 This graceful domed gazebo inside the garden at Salmon Creek School shelters a ring of cob benches. Handcrafted by a local artist, the shade structure is supported by sturdy logs harvested from the school site. Its peaked top is woven from a collection of artfully arranged branches shaped to form a distinctive rounded roof with a pointed top.¹⁰



FIGURE 13.39 This attractive, covered seating area is an asset to the school grounds at Neumark Primary School in Germany.

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FIGURE 13.40 This handcrafted, artful shelter on the grounds of Peter Joseph Lenné School in Germany has a peaked roof that protects several seats and benches.¹¹

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FIGURE 13.41 Middle Swan Primary School in Australia erected a substantial permanent shade structure over their playground, supported by tall poles, to protect students from the sun and cool the surrounding area.¹²

FIGURE 13.42 A seasonal shade sail cools the preschool playground at the Jewish Community Center of the East Bay in Berkeley, California.



sun and rain. In some climates, the sturdier structures may also shelter the seating areas from snow. (Figures 13.39 and 13.40)

Shade sails for sun protection

One of the fastest ways to produce a shady playground is to erect “shade sails” in places where students spend most of their time. Shade sails are typically made from durable cloth, metal, or plastic, and are attached to tall poles or building rooflines to cast shade onto the schoolyard’s play or seating areas. Shade sails can significantly cool the schoolyard and they protect students from the harmful effects of intense sun exposure. (Figure 13.41)

The Jewish Community Center of the East Bay, in Berkeley, California, has a paved preschool playground in a large, interior courtyard. The concrete building, walls, and ground surface intensify heat in the yard when the sun is shining during the warmest months. To protect the young children from sunburns and high temperatures, the school hangs a large cloth shade sail across half of the courtyard when the weather begins to heat up around May, and keeps it there until the weather cools down in September. (Figure 13.42)

Rain shelters for outdoor classroom and play spaces

In some climates, it rains so frequently that it is often difficult to use outdoor spaces to their full potential without some protection from the rain. Schools in these areas sometimes build substantial, open-sided rain shelters that allow children to get fresh air and meet outside for classes, even during wet weather. (Figures 13.43–13.45)

Comfort is Key for Long-Term Enjoyment

Schoolyard comfort is a key factor that determines how frequently a green schoolyard will be used by teachers and how much it will be enjoyed by students during their lessons, recess,

and after school. Creating school ground environments with a range of microclimates, protection from the elements, and comfortable seating options will make them much more pleasant and inviting. With large amphitheaters and other gathering places, a school can expand its range of community-wide events and comfortably host school celebrations of many kinds. Smaller outdoor classroom spaces entice teachers to connect their curricula to the schoolyard and provide places for individuals and small groups to work on their assignments. The smallest seating areas give students and teachers a few precious moments to relax away from the hustle bustle of the yard. Providing a range of temperature options, from warm and sunny to cool and shady, protection from the wind, and shelter from the rain makes the yard more comfortable in every season.

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FIGURE 13.43 A recent addition to the schoolyard at Ravenstone Primary School in England is a covered play area for young children, filled with toys, that connects directly to two classrooms. Translucent skylights let in some light, but the overhanging roof keeps most of it shady.



FIGURE 13.44 Sunnyside Environmental School in Portland, Oregon has a sturdy rain and sun shelter over their basketball court to extend the usefulness of their playground.¹³



FIGURE 13.45 The building's roof at Salmon Creek School in Occidental, California, extends over a large picnic table seating area, making the space much more comfortable when it is hot and sunny, or raining.

14 Form and Function: Key Design Considerations for Well-Organized Green Schoolyards

There is more to a good green schoolyard than a well-rounded list of programmatic features in a beautiful environment. For an ecological schoolyard to run smoothly and function well over time, it has to be arranged in a way that makes it enjoyable for learning and play *and* practical for daily use and maintenance. Well-designed green schoolyards take advantage of the entire school grounds through careful master planning, which allows exuberant ball games and quieter, creative and intellectual pursuits to coexist harmoniously. Successful ecological schoolyards use fences, seat walls, and other attractive structures to create clear boundaries between various uses onsite—and pathways to tie them all together. They also use signs, entry features, and other elements to communicate the purpose of each part of the grounds. This helps the school community to understand and appreciate the green schoolyard's mission, goals, and programming, so that it becomes part of the school's identity.

Defining Spaces and Separating Zones

During the schoolyard design process, many schools choose to create a series of “outdoor rooms,” connected by pathways and separated by attractive buffers (walls, fences, or vegetation) that allow more activities to fit into the same space than were there previously. Each space becomes a unique destination, with its own environment, range of activities, and intensity of use that are different from adjacent zones.

Ravenstone Primary School in England, for example, separates active play areas from quieter garden spaces with screens of trees, planters, and low fences that indicate where balls may be thrown and where other activities will take place. The school's edible garden is separated from a lawn by a path and small wooden fence. The lawn, in turn, is separated from the paved playground by a partial screen of trees. (Figure 14.1)

FIGURE 14.1

Ravenstone Primary School in England uses separate zones for different playground functions.



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