Schoolyard based teaching and learning is the focus of the Boston Schoolyard Initiative's planning, design and construction of over 60 schoolyards for Boston Public Schools over the last twelve years. Current development of dedicated Outdoor Classrooms sites expands the opportunity for engagement with all curriculum areas - including science, math, language arts, history and art - in the outdoor environment.

What is an Outdoor Classroom?

A schoolyard Outdoor Classroom is a clearly delineated area identified for teaching and learning. Over the last four years the Boston Schoolyard Initiative has developed an innovative and effective design program and kit of parts for schoolyard Outdoor Classrooms through a pilot project in nine Boston Public Schools. Lessons learned from these pilot projects will be incorporated into the design and construction of six Outdoor Classrooms in summer 2008.

Outdoor Classrooms provide a living laboratory that schools can use year-round for full class and small group instruction. The Outdoor Classroom also offers a focus for service learning, stewardship projects and afterschool education projects. The Boston Schoolyard Initiative offers materials and professional development on using the schoolyard to support the Boston Public Schools curriculum. These materials include: Science in the Schoolyard: a Guide to Taking the Kits Outdoors, developed in partnership with Boston Public Schools Science Department; and Outdoor Writers' Workshop, developed in partnership with Boston Public Schools English Language Arts Department.
Outdoor Classroom Design:

**Design for Class Management**

The process of observing, working and learning in the outdoors may be unfamiliar to some students. We have discovered design elements that contribute significantly to helping teachers and students work outdoors. Some of these elements are:

- **A child scale gateway** to signal transition from the schoolyard to the Outdoor Classroom area. Here a seed pod shaped opening celebrates arrival in the Outdoor Classroom.

- **Perimeter fencing** to define the Outdoor Classroom site and provide comfort for students and protection for plants and teaching tools.

- **Seating** that accommodates full class discussion, small working groups, and pairs of students or individuals doing observation or data collection.

- **Special places, habitats** (and increasing biodiversity) - flat stones can be turned over to find worms and bugs, large decomposing tree sections shelter isopods and ants, landscape forms and rain gardens, boulder piles and dirt mounds - all these places provide shelter for living things and invite individual and group exploration.

Curiosity is engaged, as students discover diversity in a micro-wilderness, and learn to see, and protect, the web of live.

**Supporting different learning styles**

*The outdoor classroom has a powerful impact on students of all learning abilities. There is a worry that if kids come out of the element of a traditional classroom they won't be focused. If you give kids a clear objective of what you want them to do, you are going to see incredible learning taking place outdoors.*

Erica Herman, Elementary School Principal

*Supporting different learning styles*
Teaching and learning are served best when an Outdoor Classroom is uniquely designed for the site and needs of a particular school. Through examination of the pilot projects the Boston Schoolyard Initiative continues to identify best practices and is building an evolving menu of features and components. While details of material and form vary with location, these areas and elements provide a framework. A partial list follows:

Areas (identifying features):
- **Urban Meadow** - model annual and perennial habitat
- **Sample Woodland** - trees, shrubs and herbaceous plants
- **Student planting beds** - edible & experimental gardens
- **Work and experiment area** - messy work, dirt, gravel
- **landscape forms** - a small hill, berm, or rain garden
- **Gathering and meeting area** - (for standing or sitting)
- **Gate and perimeter fence**
- **Pathways** - primary and secondary circulation
- **Individual and group seating** - logs, stone or wood
- **Armature** - structure to support teaching tools

Elements (& teaching tools):
- **Natural materials to investigate** - pebbles, sand, soil
- **Processed materials** - plastic, synthetics, concrete, metals
- **Scientific Tools** - wind instruments, temperature and rain gauges, rulers, sundials, levels, pulleys, etc.
- **Fallen logs** - provide habitat and demonstrate decomposition
- **Signage** - site map, plant ID labels, student displays
- **Bulletin boards, and white boards**
- **Water source** - (important)
- **Work surfaces** - tables, rocks, stumps
- **Compost bin & leaf cage**
- **Rain barrel, water feature**
- **Habitats** - shelter for insects and animals
- **Solar panel**

Outdoor Classroom Design:

Outdoor Classrooms, if properly supported and sustained, will add a whole new dimension to public education.

Actively used outdoor spaces require maintenance - just as indoor spaces do. Some daily tasks can be taken on by students as part of the educational process and become a way to learn about stewardship. Other work needs to be done by school maintenance staff, outside volunteers (parents, community members) or recently in Boston by summer youth work crews.

Planning for maintenance is essential at the beginning of the design process. This should involve both school system staff and the teachers and community members at the site.

Selection of building materials is critical. Choose materials that meet multiple criteria: high educational value; low maintenance; sustainable and renewable source, and transparency in function and use.
Case study: pilot project

Gardner Elementary School

site plan: 1500 sq. ft. (grid 2’ x 2’)

- Green Roof shed
- Sedums & dry environment plants
- storage area
- rock samples: metamorphic, igneous
- maple stump (decomposing)
- new entrance archway
  - armature structure w/ teaching tools, multiple thermometers; material samples, etc.
- armature supports tools, weather instruments & water collection system
- Compost bin
- Bark mulch
- Milkweed patch
- Sunny & dry plants
- Raised mound 38’ high
- Understory shrubs, low perennials
- Stepping stone path
- Locust log
- Sundial
- Rainwater collection and measurement
- Student planting beds w/ wide edges for writing
- Notice board
- Grasses

- Honeysuckle vine trellised on pole
- Echinacea
- Black eyed susan
- Understory shade plants
- Cherry tree (existing, 7” Caliper)
- White Pine
- Conifer (evergreen) area
- Bayberry
- Perimeter fence with extended poles for flags and banners
- Crushed gravel 3/4” minus light purple (typ)
- Anise – hyssop
  - Fragrant plants & butterfly plants & herbs
- Eastern Redbud
- Wind vane
- Clematis vine
- White Pine
- Bryony
- Conifer (evergreen) area
- Chamomile
- Crushed gravel
- 3/4” minus light purple (typ)
- White Pine
- Conifer (evergreen) area
- Bryony
- Crushed gravel
- 3/4” minus light purple (typ)

- Green roof model with sedums, on storage shed
- Earth-day events celebrated in schoolyard and OC
- Armature supports tools, weather instruments & water collection system
- Loose flat rocks for insect & worm discovery
- Seed pod shape entrance gate (opens for full access)

- Students in central gathering area defined by perimeter fence with flags; armature structure with weather instruments and teaching tools; fallen logs; herb and native planting beds; naturalized milkweed patch; student planting beds
Case study: pilot project

Trotter Elementary School

site plan, approximately 4000 sq. ft.

Areas & Elements

A - work area with stone table, bluestone paving, hidden water source

B - conifer woodland area with pine mulch, flat rocks for insect habitat, bermed hillside

C - primary accessible path with red color concrete & cast leaf imprints

D - fallen logs for study of decomposition and habitat for insects and isopods

E - rain garden, collects and stores run-off water from asphalt schoolyard

F - bridge & secondary circulation pathway loop around rain garden

G - grasses, herbs & milkweed patch; with secondary circulation path of pavers w/gravel
Case study: in process

Mason Elementary School

Design process in the fall & winter 2007

Outdoor Classroom Site selection - remove asphalt, remove razor wire on fence, remove dumpsters, relocate parking

Sharing the process - teacher newsletters, bulletin boards in hall for students, school wide reports as progress takes place over time

Design development - guided study of best practices & curriculum opportunities; review of design options; selection of final design to be developed by landscape architect into contract bid documents

Design concept plan for summer 2008 construction, student use in fall 2008

Urban Meadow - naturalized annual plants, stepping stone pathways, digging area, earth berms

Armature structure - defines entrance, provides mounting for scientific tools, weather instruments & signage

Work and gathering area - fallen logs, log slice paving, storage shed w/ roof garden

Student planting - raised beds, herbs, experimental planting

Messy work area - digging box, wet / sand table

Rock garden & gravel - sample rock types, and surfaces

Sample woodland - trees, shrubs and herbaceous; mounded landscape w/ paths

Perimeter fence & rip-rap slope - protects and defines boundaries, fence with long poles for flags and banners