

DENVER PUBLIC SCHOOLS
Facility Management



Discover a World of Opportunity™

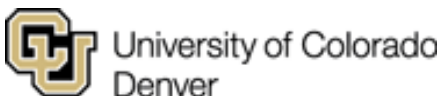
Learning Landscapes Maintenance Toolkit



Acknowledgements

The following document provides guidance and resources for collaborative Learning Landscapes maintenance. This document was prepared by the University of Colorado Denver for the DPS Grounds Department with input from several sources including:

- Cate Townley, Volunteer and Maintenance Coordinator Learning Landscapes
- Scott Muir, Community Outreach Assistant Learning Landscapes
- Mike Swankhouse, DPS Facility Management ,Grounds Foreman
- Troy Garner, DPS Facility Management, Special Projects Manager
- Lois Brink, Executive Director Learning Landscapes
- Darin Delay, DPS Construction Services, Project Manager



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Introduction

Learning Landscapes is the result of a longstanding partnership between Denver Public Schools (DPS) and the University of Colorado Denver (UCD). Started in 1997, the Denver Public Schools Learning Landscape program is the first district-wide schoolyard redevelopment project in the nation. Funding for Learning Landscapes schoolyard construction came from a variety of sources. Initially, the Learning Landscapes Initiative, a public/private entrepreneurial effort, launched the fundraising efforts. In 2003 and 2008 Denver voters passed multi-million dollar bond initiatives to complete the redevelopment.

Learning Landscapes schoolyards are designed to celebrate the unique character of the school and are community, and constructed as multi-use environments for outdoor learning, creativity and physical activity. As a schoolyard transforms into a Learning Landscape the maintenance requirements at the site evolve. The foundation for preserving the quality and character of these unique schoolyards is respect from students and the surrounding community. Keeping Learning Landscapes looking beautiful is a collaborative effort. Everyone helps keep a watchful eye for vandalism and maintenance issues. Learning Landscape maintenance is a responsibility shared among the school, district facility management, and community members.

For more information visit: [Learning Landscapes Website](#)

Vision:

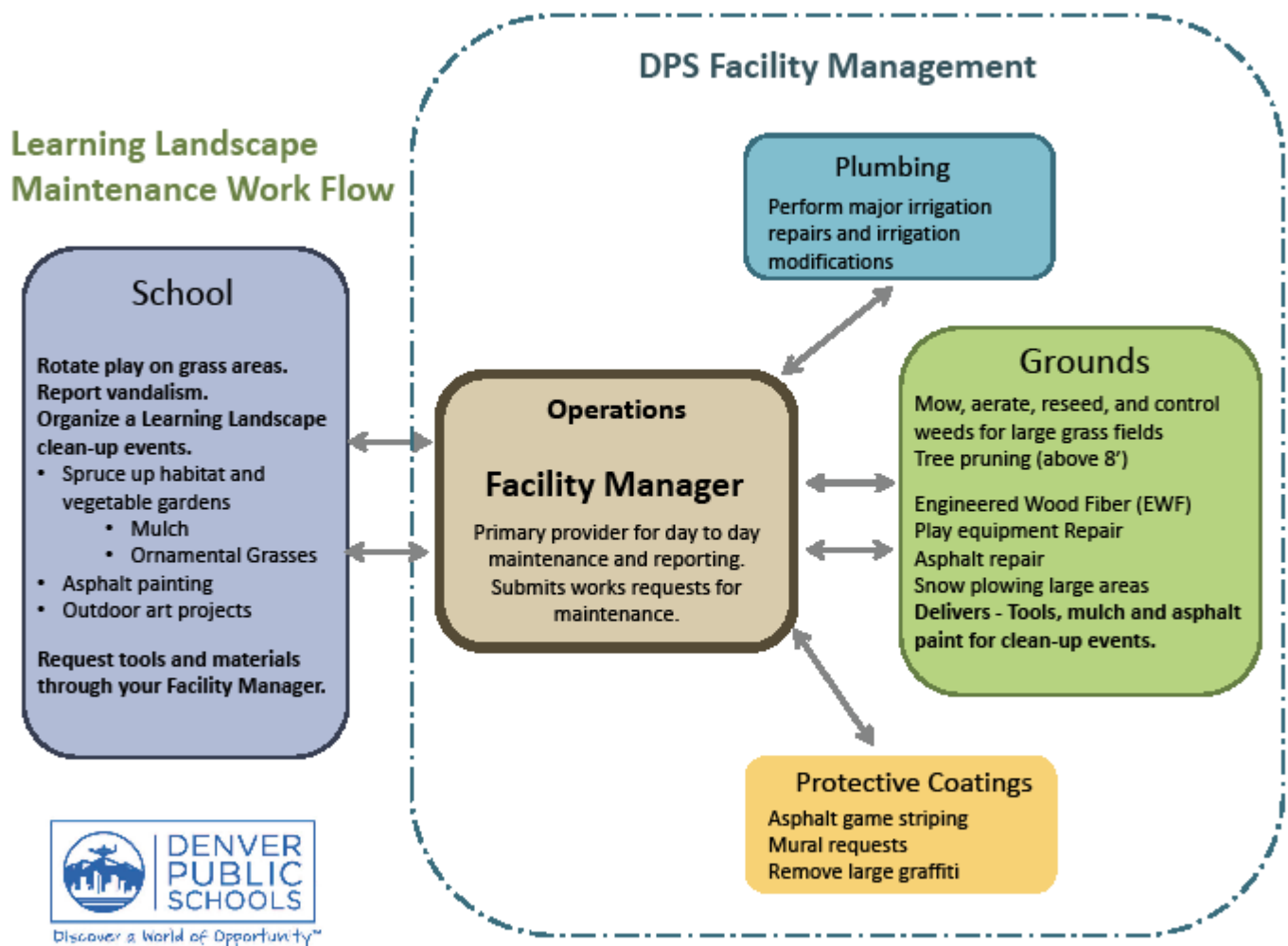
Schools, communities and DPS Facility Management will collaborate to maintain Learning Landscapes schoolyards as safe, attractive places for education, physical activity and community gathering for generations to come.



Learning Landscape Shared Maintenance

Maintenance Work Flow Chart

All Learning Landscape maintenance requests flow through the school's Facility Manager to the appropriate DPS Facility Management Departments.



Frequently Asked Questions

What can our school do to CLEAN UP our schoolyard? DPS can provide most of the material you need. All you need to do is organize a schoolyard cleanup event to cleanup natural areas and gardens, rake leaves, add mulch, fluff play pits, and paint asphalt. For More Info: [Organizing a Schoolyard Cleanup](#)

Can we PLANT TREES? Yes you can. Contact your school's Facility Manger to get approval and determine other steps that may be needed to plant. For More Info: [Cool Schools \(Mile High Million\)](#)

There is GRAFFITI on our playground. How can we get rid of it? Meet with your principal and your school's Facility Manager to make sure a work order has to been submitted to DPS. DPS policy is that graffiti should be removed within 48 hours. For small areas ask you FM for graffiti removal supplies.

How do we report schoolyard VANDALISM or broken play equipment? Meet with your principal and your FM to confirm that a work order has been filed with the school district for repairs. Safety issues are prioritized. They should be reported within 24 hours, and noted as "Urgent Safety Issues."

Our students can't reach the SWINGS? The soft surface material under the swings needs to be either leveled or augmented with addition material. [Watch an Online Video](#) about EWF.

Our FIELD is looking bad, brown and bare. What can we do? There are three possible things causing this. 1) the irrigation water is turned off, 2) there is disease or 3) (most likely) the field is being over used. For More Info: [Field Rotation Information](#)

How does our school create new BANNERS? Who supplies the paint & banners? Each school purchases and coordinates the painting of new art banners. This is a great project to add unique character to the schoolyard, and help students take ownership of the space. For More Info: [Learning Landscapes Outdoor Art](#)

We want to paint an ART MURAL at our school. How do we get started? Murals are a great way to add colorful character to your schoolyard. Work with your FM to get approval for your mural project, from DPS Protective Coating Department. For More Info: [Learning Landscapes Outdoor Art Guide](#)

How can we REPAINT ASPHALT games on our schoolyard? Re-stripping White Lines: Have your FM place a work order with DPS Protective Coatings. Color Areas: Schools are responsible for adding color to the asphalt games. These can be repainted by small volunteer or student groups. DPS Grounds can provide you with the paint and tools. For More Info: [Asphalt Painting](#)

How do we start a new school GARDEN? Contact Laurel Mattrey, with the DPS Sustainability Department. For More Info, check out the [DPS Garden Coalition](#) or email: laurel_mattrey@dpsk12.org

Where do we get MULCH? DPS will supply mulch for habitat areas, but NOT for vegetable gardens. - HABITAT AREAS: Have your FM place a work order with the DPS Grounds Department. - VEGETABLE GARDENS: Mulch donations can often be found from local tree companies (ask if they'll load it into a truck for you.) You'll probably need to pay if you'd like it delivered. For More Info: [Mulching](#).

How do we stop the broken IRRIGATION geyser? Talk with your Facility Manager. If the FM is not able to fix the irrigation then the FM will contact DPS Plumbing.

Learning Landscape Maintenance Areas and Resources

Asphalt and Hard Surface Games

Colorful hardscape games excite students' creativity during play. Every four to five years the hard surface games need to be repainted. DPS Protective Coatings paints the white striping outlining the game courts. Schools recruit volunteers to add color and details to the game areas. Schools work with their Facility Manager to order colored paint and supplies to complete the project. For more information visit the Learning Landscape guide: [Paint Colorful Asphalt Games](#)



Habitat Areas

Learning Landscape habitat areas provide a place for curiosity, discovery and hands-on education in an urban environment. Habitat areas need care to continue to attract birds, bugs and other species. Schools are encouraged to work with their Facility Manager to keep their habitat areas attractive and inviting to students and community. Schools and volunteers can help with weeding, pruning, mulching and adding new plants. For more information visit the Learning Landscapes guides:

[Help Control Weeds](#)

[Mulch: Shrub Beds and Habitat Areas](#)

[Ornamental Grasses: Winter Trimming](#)



Shade Trees

Trees are a valuable source of shade and beauty on the Learning Landscape. Schools care for trees by teaching students not to peel off bark or break low hanging limbs. Schools work with the Facility Manager to add trees to the Learning Landscape. For more information visit the Learning Landscapes guide:

[Young Trees: Pruning and Care](#)

For a local resource for trees and tree education for your school visit:

[Mile High Million School Tree Planting Program](#)



ENSURING CONTINUED SUCCESS

Grass playing fields

Grass playing fields at Learning Landscape sites follow district maintenance guidelines for mowing, aeration, reseeding, top dressing, weed control and fertilization. Schools do their part to keep the fields healthy by: **rotating** games during recess and PE to reduce wear patterns, **restricting** use during very dry or very wet field conditions and allowing fields to **recover** after heavy use and during spring growth.

Grass Fields: Keep Them Green

Outdoor Artwork

Outdoor artwork gives students a sense of pride and ownership of their playground. Learning Landscapes outdoor artwork consists of student-designed banners, tiles and murals or installations by local artists. In addition to providing schools an opportunity to creatively express their unique character and culture, schools displaying outdoor art often report less vandalism.

Schools are responsible for maintaining and installing outdoor artwork. Visit the Learning Landscapes Outdoor Art Guide for more information.

Learning Landscapes Outdoor Art Guide



FORCE ELEMENTARY ANIMAL CLIMBING STRUCTURES (DESIGNED BY ELEMENTARY STUDENTS AND BUILT BY PLAYTIME)

Vegetable Gardens, Urban Farms

School vegetable gardens are an example of site-specific programming on Learning Landscapes that promote sustainability through community capacity building, healthy eating, and curriculum enhancement. In 2010 local garden organizations with a long history of working on Learning Landscapes schoolyards formed the Denver School Garden Coalition(DSGC) with DPS Facility Management. This group developed a document with guidelines and procedures for gardening on DPS Property. [DSGC Operating Manual](#)

<p>Denver Urban Gardens BARRETT CHELTENHAM COLE DOULL EDISON FAIRVIEW FALLIS (Denver Green School) GREENLEE HARRINGTON JOHNSON MAXWELL MITCHELL PALMER PARK HILL PLACE BRIDGE SAMUELS SANDOVAL STECK SWANSEA VALDEZ BRADLEY BROMWELL BROWN ELLIS FAIRMONT LOWRY STEELE WHITTIER</p>	<p>Slow Food Denver ASBURY CENTENNIAL CORY EAGLETON KUNSMILLER LINCOLN MCGLONE MCKINLEY-THATCHER MONTCLAIR SLAVENS SMITH STEDMAN TELLER BRADLEY BROMWELL BROWN ELLIS FAIRMONT LOWRY STEELE WHITTIER</p>	<p>No Affiliation ASHLEY BRYANT-WEBSTER DENISON EVIE DENNIS FORD GILPIN GREENWOOD KNIGHT MARRAMA PHILIPS (Odyssey) ROBERTS SABIN SCHENCK WALLER</p>
<p>Learning Garden AMESSE CASTRO COWELL NEWLON OAKLAND SCHMITT VALVERDE UNIVERSITY PARK</p>	<p>UrbaCulture Farms COLUMBIAN</p>	<p>LiveWell Westwood MUNROE</p>

CARING FOR YOUR SCHOOLYARD



ORGANIZE A SCHOOLYARD CLEAN UP!

PLAN AHEAD!

1. Pick a Day
2. Reserve DPS Tools
3. Advertise with Posters/Newsletters
4. Have Fun!



MULCHING BEDS DPS provides free mulch. Contact DPS Grounds Department 2-3 weeks before your Work Day for mulch delivery.



ASPHALT PAINTING Keep your schoolyard bright and beautiful. DPS provides free paint. Paint asphalt every 2-3 years. [Click here for more info.](#)



PLANTING
Fall: Plant bulbs in shrub beds and under trees.
Spring: Plant Flowers and vegetables.

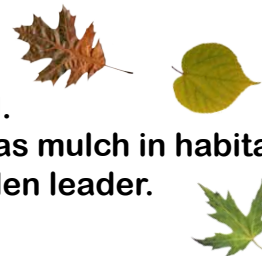


WEEDING
Dig up roots and preventing seeds from scattering. [Click here for more info](#) or a [Video on Weeding.](#)

PRUNING Think Safety & Visibility!
Remove 'suckers' from the base of trees and thin plants so you can see through them (instead of shearing outside edges). [Click here for more info.](#)



COMPOSTING LEAVES Build Better Soil. Collect leaves in fall for compost bins or as mulch in habitat areas. Coordinate with your school's FM or garden leader.



PLAY AREA EWF
Improve the safety of Engineered Wood Fibers by fluffing annually. [Watch a Video on EWF Maintenance.](#)



GARBAGE & SWEEPING
No schoolyard clean up is complete without a final sweep. Take pride in your work and in your school.



CONTACT DPS GROUNDS FOR TOOLS
Your school's FM can help.



Spring or Fall, Bring Your Community Together to Keep your Schoolyard Beautiful !

ASPHALT PAINT



Keep Your Schoolyard Bright & Beautiful!

DPS will provide all the Paint & Tools
Your FM can help you contact DPS Grounds.



4 people + 3 hours = 4 Tetherball Courts
20 people + 6 hours = Your Entire Schoolyard



Where to Begin = Color Scheme & Supplies

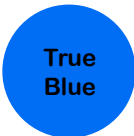
COLOR CHOICE

DPS Grounds provides a standard set of 6 colors plus white for the 4" outline. Each color will be in a 5 gallon bucket.



COVERAGE / QUANTITIES

Each Tetherball or Foursquare Court = 2 gallons of paint
Foursquare Court = 15'x15' (225 sq.ft.)



TOOLS / PAINT

Contact DPS Grounds to confirm your work day.
Coordinate with your school's FM regarding an outdoor water source for pressure washing and utility closets for cleaning brushes on your work day.



PREPARATION - **Pressure washing is important so your work will last.**
For best results, pressure washing should be done the day before.



3 Weeks Before - Schedule Paint & Tool Delivery with DPS
After confirming tools, round up volunteers or students

Day Before - Confirm Color Scheme & Paint Quantities
Pressure Wash the areas to be painted

Day of - Arrive early. Communicate Color Scheme. Have Fun!!

PAINTING TIPS:

- USE DROP CLOTHS at paint stations (with rags for spills).
- Don't Paint Yourself In! Work from one side to the other or center out.
- Large Areas 1st - Pour paint into the center, then spread with rollers.
- Long handles for rollers can prevent back aches.
- Keep brushes and rollers with their colors to limit clean-up later.
- Provide buckets of water to place brushes in when not in use.
- Add Numbers, Letters & White Outlines last after all other paint is dry.



WEEDS

Get those Roots and Seeds!

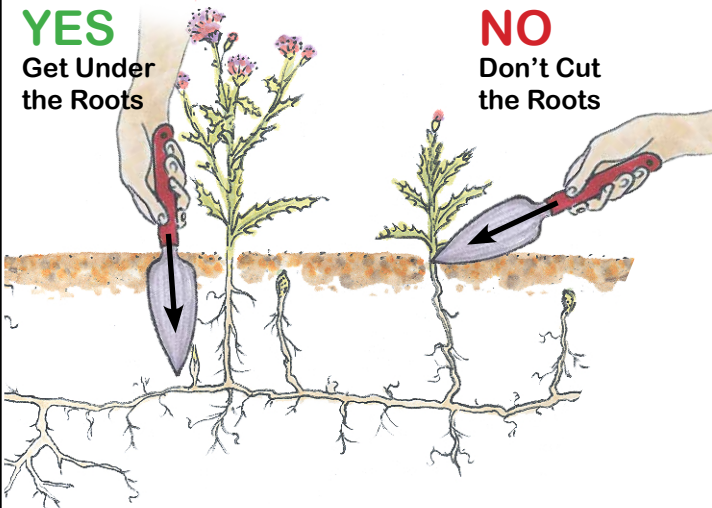


Dig Deep!

Don't "Pull Weeds,"
"Dig Weeds Out" with a trowel.
Get those roots!

Make weeding a contest.
Who can dig the longest root?

YES
Get Under
the Roots



NO
Don't Cut
the Roots



5 Usual Suspects:



Puncturevine A.K.A. "Goatheads"



Siberian Elm Tree



Prickly Lettuce

Don't let Weeds go to Seed!

Flowers make Seeds.
If you don't have time
to dig up weeds,



cut flowers & seed heads
and carefully bag them
so they don't spread!



Canada Thistle



DPS Grounds can provide
gloves & trowels for student groups.

Ask your FM to contact Grounds.

Watch a Video:
[Controlling Schoolyard Weeds](#)



Bindweed
(Related to Morning Glory)

KEEPING YOUR FIELD GREEN

What can you do if your field has brown & bare spots?

1. Double check your irrigation - Is the water off? (Contact your FM)
2. There may be a disease or fungus. (Contact DPS Grounds)
3. Most likely, you need to manage the use of fields to spread wear and allow recovery. (Everyone Can Help)

Every Day, Play a Different Way!

Students can play kickball every day, but encourage them to move home plate to a fresh patch of grass each day.



Move Goals Over

- or -

Rotate Goals 90°

Other simple ways to minimize wear on your fields:

- Limit use when your field is very wet.
- Coordinate watering schedule around recess times.
- Limit use of your field in the winter.

Remember: Grass is alive! but grows very slowly in the Winter, so it can't recover as fast from heavy use.

Rotate. Restrict. Recover.

Field Looks Stressed? Give it a Rest!

MULCH

Conserves Water
Improves Soil Fertility
Reduces Weed Growth



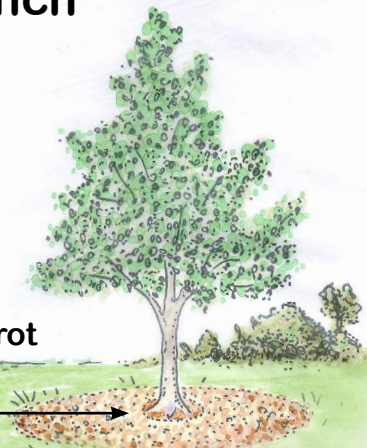
Help conserve water use on your schoolyard. Mulch does more than just look good. It reduces mud, prevents erosion and helps the soil retain moisture for plants.

Mulch can be spread anytime, spring or autumn. Contact DPS Grounds Dept. 2-3 weeks before your work day to coordinate a delivery of mulch. They can provide tools as well.

Your school's FM can help contact DPS.

Aim for a 6 inch mulch layer

Trees love a mulch ring, but keep it 3-4 inches from their trunk, to avoid moisture rot on their bark.



Tips:

- Spreading mulch near plants? Use your hands instead of a rake, to avoid accidental damage.
- Mulch isn't too heavy, so fill wheelbarrows all the way to the top.
- Use Square 'Transfer' Shovels
- Don't bury irrigation heads



ORNAMENTAL GRASSES EARLY SPRING TRIMMING



Not a Weed - Save the Seed!

Ornamental grasses are low-water, low-maintenance plants that are wonderful in habitat areas.

They grow in bunches and provide visual interest to snowy winter landscapes, while their seeds can be a valuable food source for birds.



Bundled Together



Leave 6-12 Inches

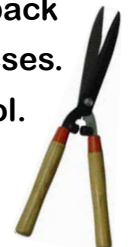
Ornamental grasses benefit from being cut back, and **winter is an excellent time, before new spring growth appears.**

The week before school starts back is **NOT** the best time to trim grasses.

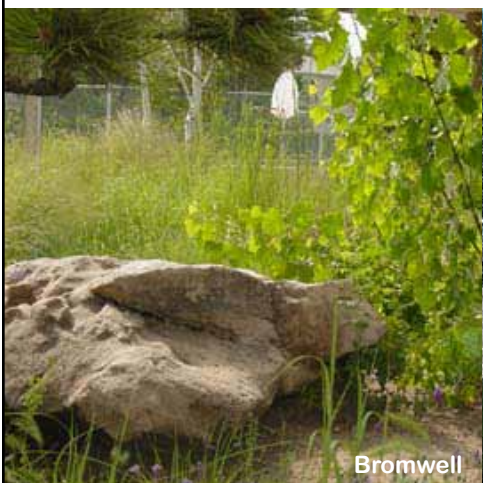
Focus on the rest of the school.



[Watch a Video](#)



Before trimming, **tie grasses together into bundles** using twine or a bungee cord to help make clean up easier. Do **NOT** cut grass even with the ground, as this can kill them. Instead, **leave 6-12 inches** of last season's growth, it will soon be hidden by new growth.



Bromwell



Ford



Formal 'Architectural' Use
Fresh Growth at the Base
Gilpin

Trimming habitat areas is less important - these grasses can be left long all year.

Grasses used to buffer play areas from parking. Still Green = Don't Trim Yet

These would look great all trimmed to the same height just before new spring growth.

TREE CARE



Old majestic trees come from young trees that were well cared for.

Hand tools are best for tree trimming. Chain saws are faster, but pruning is not a race. Working slowly prevents accidents to both you and the tree.

PRUNING: "So a bird could fly through..." Thin trees so you can see through them, rather than shearing them into rigid shapes.



Remove Suckers



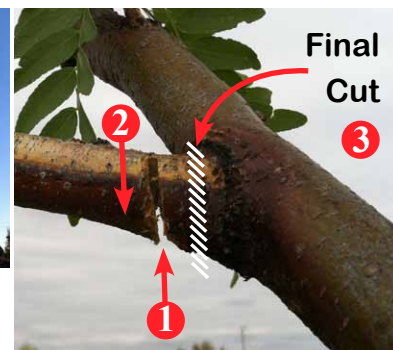
Criss-Cross: Remove smaller



Branches Too Clustered



A bird could fly through



Pruning Priorities - Remove:

1. Suckers - growing from the base of trees.
2. Criss-Cross Branches - Branches that rub together damage the tree's bark and lead to disease. Remove the smaller limb.
3. Dead Wood - Rather than bending under snow weight or wind, dead wood will break, which can be dangerous.
4. Low Limbs - Less than 3" diameter and below 8 feet - Hanging from small branches can be dangerous for students, but also for the trees if their bark is torn or damaged.



3-Step Saw Cut Prevents Bark Tears

1. Under Cut - just out from final cut.
2. Main Cut - just out from undercut.
3. Clean-up Cut

MULCH. Mulch rings help keep young trees happy. They make mowing easier too!

WATER. Winter watering helps young trees stay healthy.



Vocab:

Cambium - A tree's essential layer of living green tissue just beneath the bark; (Good)

Girdle - Damage/Removal of a ring of bark all the way around a tree - Kills the tree; (Bad)



Ebert



Knight CEE

Outdoor Art



Smith

Art installations are created for each school by students and local artists



Carson



Fairmont



Carson



Carson



Steck



Edison



Smith



Force



Harrington



Bromwell

**Learning Landscapes
Tiles & Banners
Murals & Sculptures**

Outdoor Art Projects are a great way to give your schoolyard unique character while engaging your school community. When students help create outdoor art, they also gain a wonderful sense of pride and ownership in their playground.



Smith

Schools must get district permission before installing artwork

For Funding, Check: www.dpsfoundation.org/school_resources_AtoZfund.php



Outdoor Art

Local Denver Artist Contacts

Tony Ortega
tortegaartist@cs.com
www.tonyortega.net/index.html
Schools: Bromwell, Ebert, Gilpin



Andy Dufford
andy@chevostudios.com
www.chevostudios.com
Carson, Ebert, Ellis, Fairmont, Steele, Southmoor



Michael Gadlin
mgadlin@gadlincanvas.com
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Columbine, Smith



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Chris Olson
www.chrisolsonstudio.com
Philips, Smith

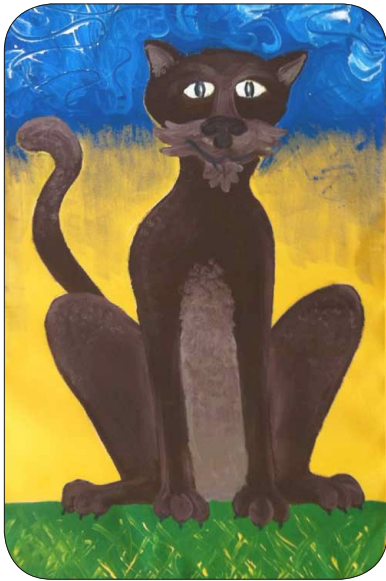


Scott Muir
13scotts@gmail.com
Greenwood, Knight CEE, Swigert, McKinley-Thatcher



These local Denver artists created artwork for Learning Landscapes Schoolyards.

Outdoor Art BANNERS



- Display Student Artwork
- Create School Pride & Ownership
- Involve Community & Parents



Your Learning Landscapes playground has steel banner poles with horizontal arms to accommodate 44" x 24" canvas art banners.



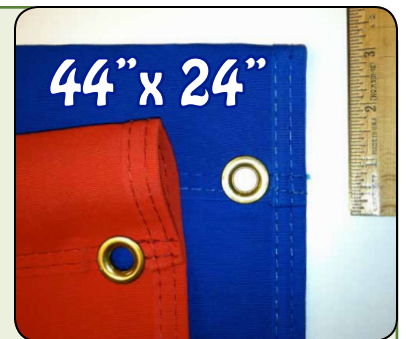
**Help Students
Create New Banners!**

Supplies & Vendors:

BLANK BANNERS:
Denver Tent (local)
Contact: Jeff Greene
303-399-3232
www.denvertent.com
Approx. \$40 per banner

Material Promotions (Connecticut)
Contact: Peter Bove
1-888-757-8908, 203-757-8911 (fax)
pbove@materialpromotions.com
Approx. \$25 per banner

Banners - Nylon Canvas
Double-Stitched Seams
3" Pole Sleeves
on Top & Bottom
Security Grommets



ACRYLIC PAINT :
Guiry's Art Supplies
Contact: Felicia
303-758-8244
2468 South Colorado Blvd.
Denver, CO 80220



Outdoor Art BANNERS

Outdoor Art Banners are a great way to display students' artwork and give the students a sense of pride & ownership in the playground.

Step 1: CHOOSE A THEME

Character Traits, Seasons, International Flags, Nature Scenes, Colorado History, or ???



Step 2: DESIGN

Students brainstorm a theme, then create artwork on paper to develop their ideas. Select a few drawings or combine several.

Step 3: TRANSFER ART ONTO CANVAS

Use Chalk to transfer artwork to canvas banners.

Step 4: PAINT !

For best results, have 2-3 students work on each banner at a time, while others engage in another project. If students are inexperienced painters, take time to show them a few techniques:

- Small brushes are best for edging and details.
- Paint larger areas first, before small details.
- Lighter colors often require a second coat.
- Contrasting colors are easier to see far away.
- Save supplies and minimize mess -
Give students colors only as they need them.

TOUCH - UP

Banners will be displayed high on your schoolyard, so take time to add contrasting outlines to lettering, so they can be read from the ground.

Step 5: SEAL & HANG

Protect from weathering with clear polyurethane, such as "Canvak" from Denver Tent. Secure banners to poles with carabiner clips. An 8 or 10 foot ladder should be tall enough.



Mixing Skin Tone Paint - Our skin tones are all different, so experiment. Darker colors are stronger, so only add a little paint at a time. Start with a White base & add Yellow, just a little Red & even less Brown. Remember, not all of your people need to be the same color.





- Display Student Artwork
- Create School Pride & Ownership
- Involve Community & Parents

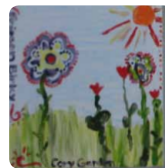
Your Learning Landscape
has concrete seating walls
with special recessed areas
to accommodate ceramic tiles.

Help Students
Create Art Tiles !



Tiles - Blank tiles are available in both 4"x 4" and 8"x 8" sizes.
8" tiles are sold 30 tiles/box - 4" tiles are sold 88 tiles/box - apprx. \$40

Glaze - Use a low-fire ceramic glaze, such as 'Duncan Envisions I.N.' which is non-toxic. The colors stay true during the Kiln-Firing process.



Supplies & Vendors:

BLANK TILES:

Daltile
735 S. Huron
Denver, CO 80223
303-744-1743

4"x 4" CD01 White STD
product# CD01441P

8"x 8" Porcl Nat CD28 Bianc Ghiacci STD
product# CD28881PP

Ask About
a DPS
Discount !!

GLAZES:

Mile Hi Ceramics
77 Lipan Street
303-825-4570

FIRING TILES:

CAPCO Tile and Stone
5800 E. Jewell
Contact Sue McRae 303-300-8205

Or you can fire your own
if your school has an electric kiln.

Art Tiles are a great way to add playful color to your schoolyard. Your Learning Landscapes playground has concrete seating walls with special recessed areas to accommodate ceramic tiles.



Step 1: THEME/DESIGN

Choose a theme for your school's tile project. For best results, students should create artwork on paper ahead of time, then transfer their design onto tiles using special low-fire glazes.

Step
By
Step

Step 2: GLAZE

Do NOT water down glazes. Colors look best if they are applied in thin even strokes, with a second coat applied when dry. Dry brushes well after washing.

Step 3: KILN FIRE

Tiles must be fired before installation. If you have an electric kiln, you can fire the tiles at your school @ Cone 06. Or, CapCo can fire the tiles for you.

Step 4: INSTALL

Installation is simple, but requires a few special tools and 2 days of good weather. Having 2 or more people also helps.

- Day 1. Adhere the tiles. It helps to lay out the tiles before applying adhesive, to verify spacing. Follow the manufacturer's instructions, using a grooved trowel. 'Premixed Thinset' is easiest.

- Day 2. Grout the gaps. In addition to a rubber grouting trowel, you'll need a water bucket and a few large sponges, to buff and polish the tiles as grout sets.



These tiles were painted by Kindergarteners at Knight Center for Early Education, with the theme: "Things we find in a garden" Adults helped the young students add black outlines & details. Simple green stripes help unify the finished tiles.

