Cool Your Schoolyard (Trees, Shade, Permeable Play)

FOR: School district facilities & capital planning • PARTNERS: parks dept, local conservancy, community groups • SDGs: 11 • 13 • 3

One-sentence summary. Add tree canopy, shade structures, and permeable play surfaces to cut heat stress on playgrounds—often by ~5–6°C (≈10°F)—and improve health, attention, and play.

Why it matters

Field studies show shaded schoolyards feel dramatically cooler and support more active play. Green features—trees, gardens, nature trails—lower heat index and support student well-being. Addressing heat at recess is both a health measure and an equity measure because hottest neighborhoods often have the least tree cover.

Evidence (key points)

• Green schoolyards with trees/gardens reduce heat index and can improve activity and well-being.

• Shade (natural or built) reduces surface and air temperatures in play spaces; thermal comfort improves.

• Students are more active during recess under shade at higher ambient temperatures.

• Urban heat maps can target the hottest schools first and guide canopy investment.

Options considered

Option	What it looks like	Pros	Cons
Status quo (asphalt yard)	Unshaded blacktop; limited trees	No capital cost	High heat stress; low comfort; runoff and flooding
Tree canopy + green edges	Shade trees at perimeters; rain gardens; seating under trees	Cools air/surfaces; stormwater benefits; habitat	Needs watering/establishment; space planning
Shade structures + permeable play	Sails/pavilions over play; light-colored/permeable surfaces	Immediate cooling; usable in 1 season; ADA-friendly routes	Capital/maintenance; wind/snow design requirements

Alt text: Table compares status quo asphalt yards, tree canopy, and shade/permeable play upgrades.

Recommendations

1) Target hottest schools first using local heat maps. Owner: Capital Planning. Steps: overlay heat data with tree-canopy gaps; pick 3 pilot schools; set canopy and shade targets per yard.

2) Design for layered shade. Owner: Design team. Steps: combine trees (long-term) with sails/pavilions (near-term); daylight building entries and crosswalks; add permeable routes and cool surfaces.

3) Engage students: micro-climate lab. Owner: Teachers. Steps: “How cool is your schoolyard?” student sensors log shaded vs unshaded temps; publish results and guide planting/placement.

Local data & resources: Philadelphia

- Nature Conservancy — Philadelphia Urban Heat Map (areas of need for trees)
- NOAA — Community urban heat mapping campaign (Philly)
- Parks & Rec/Conservancy — TreePhilly free tree giveaways
- PHS — Tree initiatives & urban heat island mitigation
- Drexel Academy — Heat mapping press release (Philadelphia)

What to do next (60–120 days)

Weeks 1–4: choose pilot schools; quick shade (sails) and cool coatings; plan tree planting. Weeks 5–12: install structures; plant/irrigate trees; start student sensor lab. Weeks 13–16: evaluate temps, activity, and feedback; expand design to next schools.

How we’ll measure success

- Mid-day surface temp on play areas: ↓ 5–6°C (≈10°F) under shade vs baseline
- Days with heat-related recess adjustments: ↓ vs prior year
- Percent of yard shaded at noon: +20–30 pp
- Student activity during recess: ↑ on hot days (counts/sensor logs)

Credits & sources (clickable)

- BMC Public Health — Green schoolyards project (heat index & activity)
- PMC (open access) — Green schoolyards project article
- Systematic review — Outdoor play/time correlates (context)
- Reimagining play spaces & thermal comfort
- Nature Conservancy — Philly heat map