[Not] Too Cool for School

Addressing Heat in NYS Schools to Improve the Health, Learning, and Behaviors of Students, Faculty, and Staff

Augusta Williams, ScD, MPH | Department of Public Health and Preventive Medicine | SUNY Upstate Medical University

New York State School Environmental Health Conference | October 24, 2024

- Direct sun exposure
- Outdoor temperature and humidity
- Lack of shade

Learning

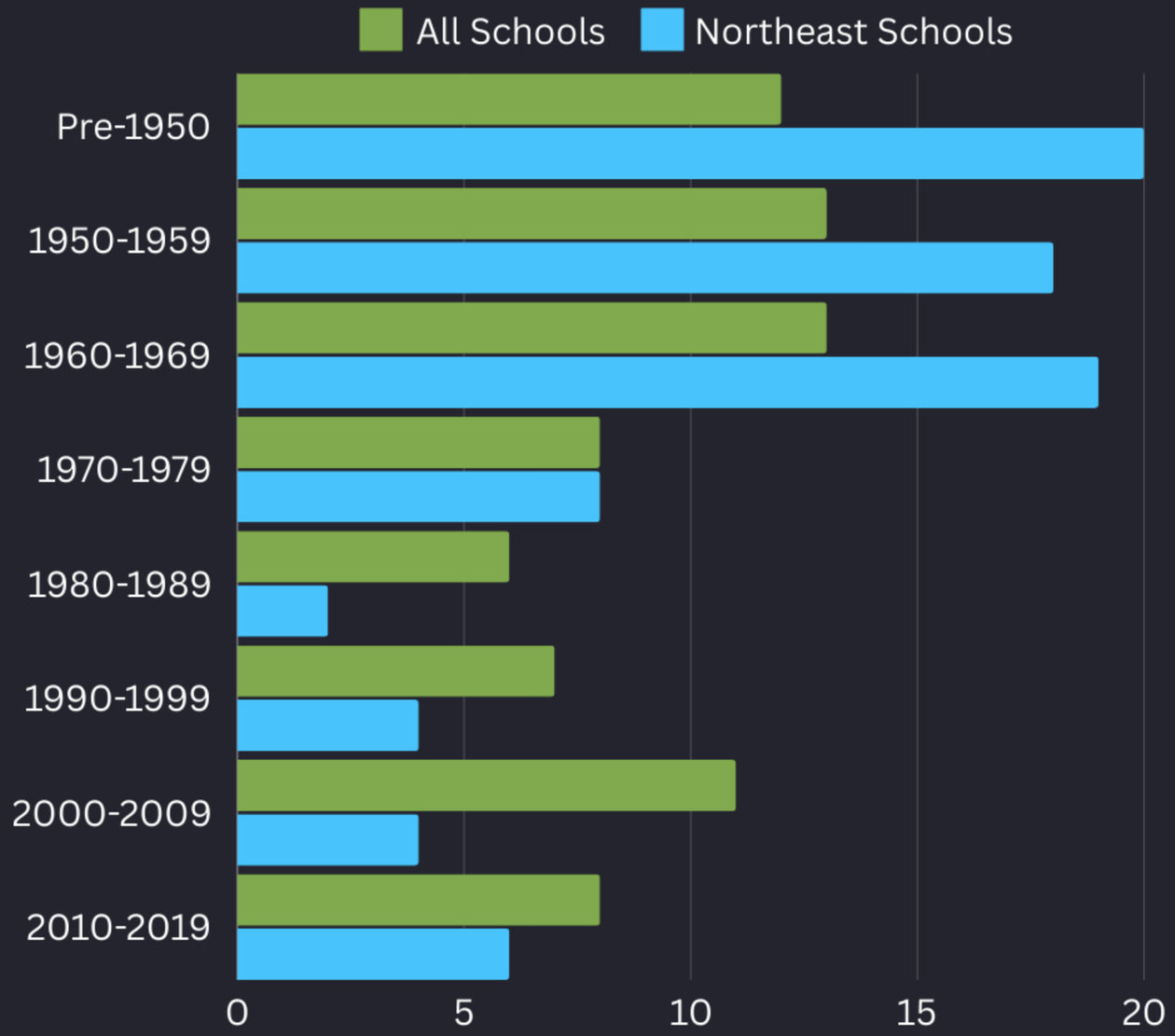
Recess

Sports

Physical Education

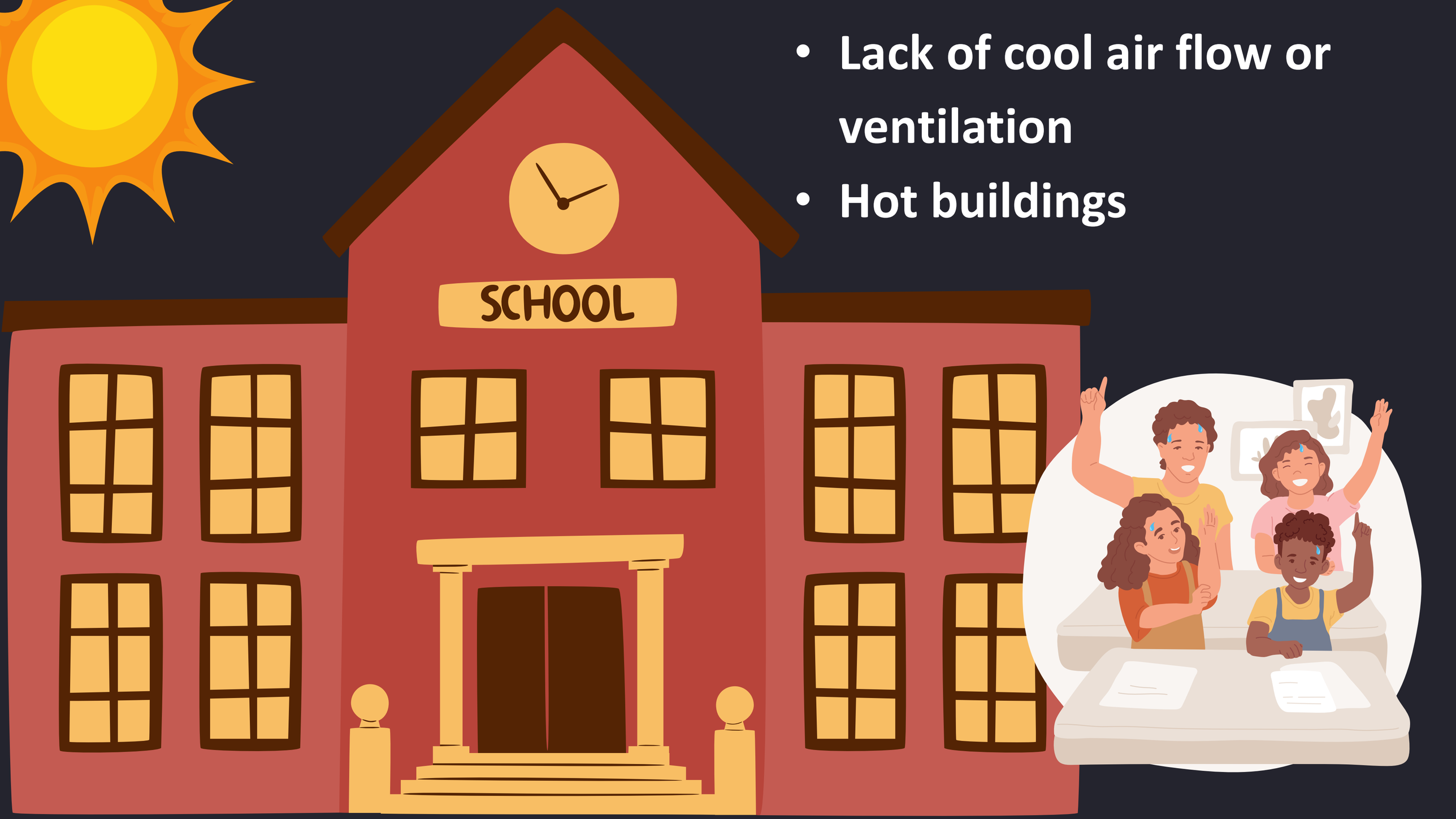
- Lack of cool air flow or ventilation
- Hot buildings

Northeast schools tend to be older than all schools in the United States

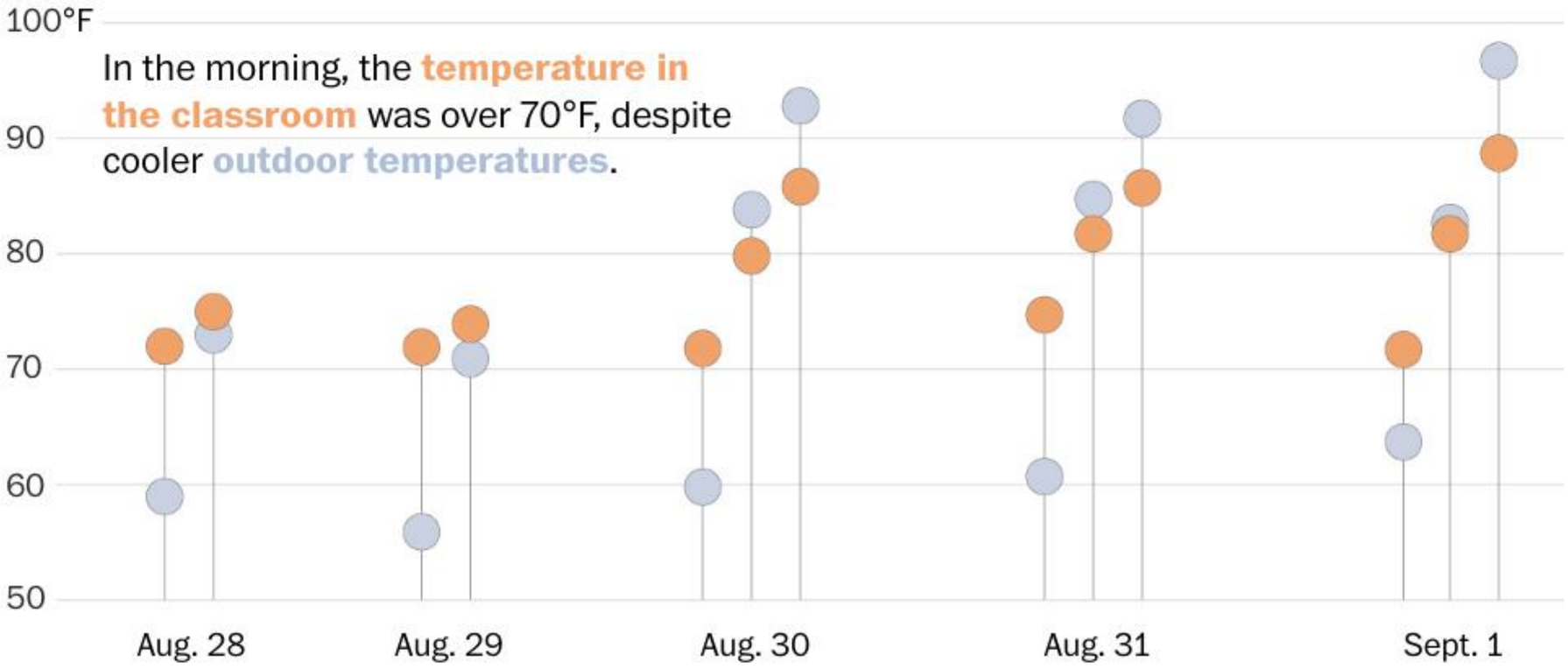


Source: https://nces.ed.gov/surveys/spp/results.asp

- Lack of cool air flow or ventilation
- Hot buildings



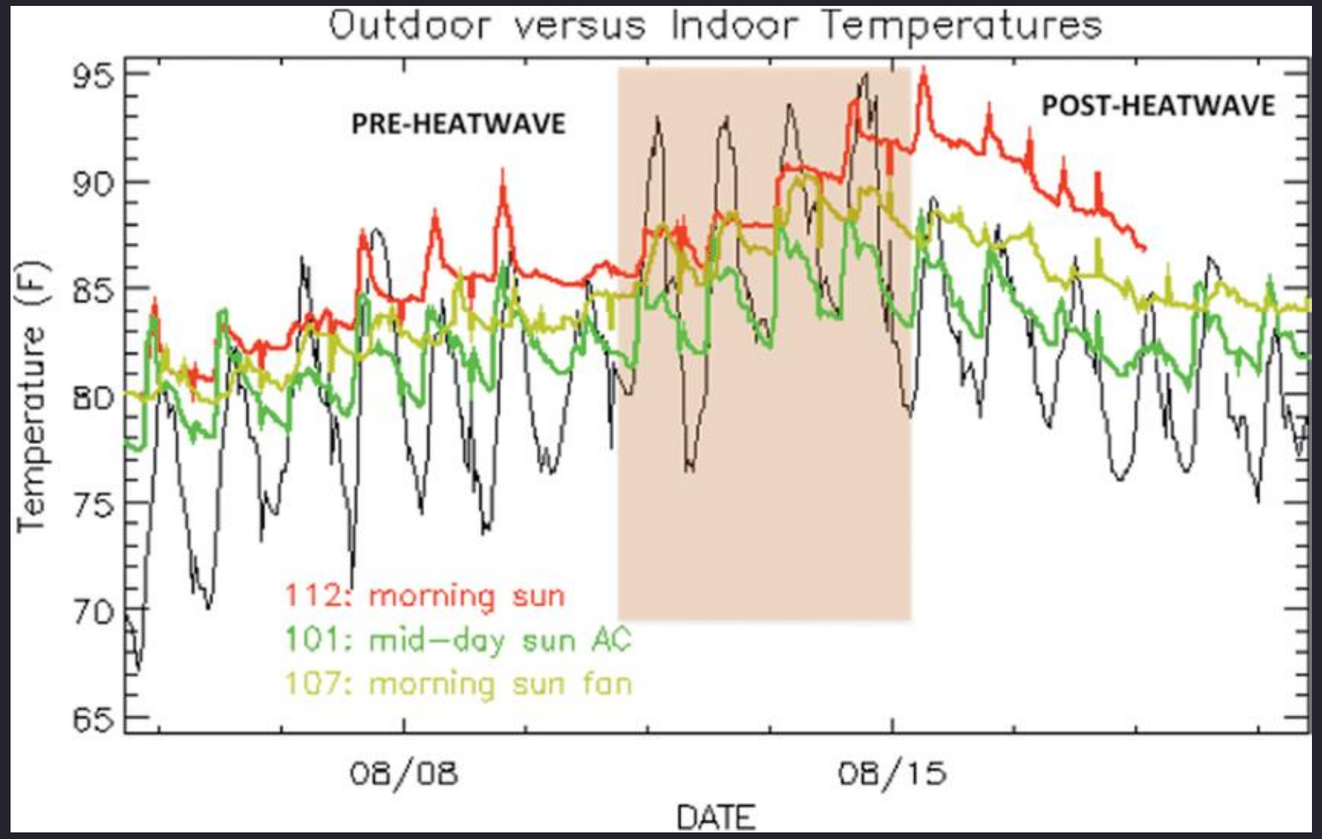
Temperature readings from Asbury Elementary show how heat builds in an uncooled classroom



Note: Maintenance staff took temperature measurements in classroom 108 at 7:30 a.m. and 11:00 a.m. each day from Aug. 28 through Sept. 1, 2023. From Aug. 30 through Sept. 1, an additional measurement was taken at 1:30 p.m.

https://www.washingtonpost.com/climate-environment/interactive/2024/school-temperatures-heat-climate-change/

Buildings can be subject to Indoor Heat Waves



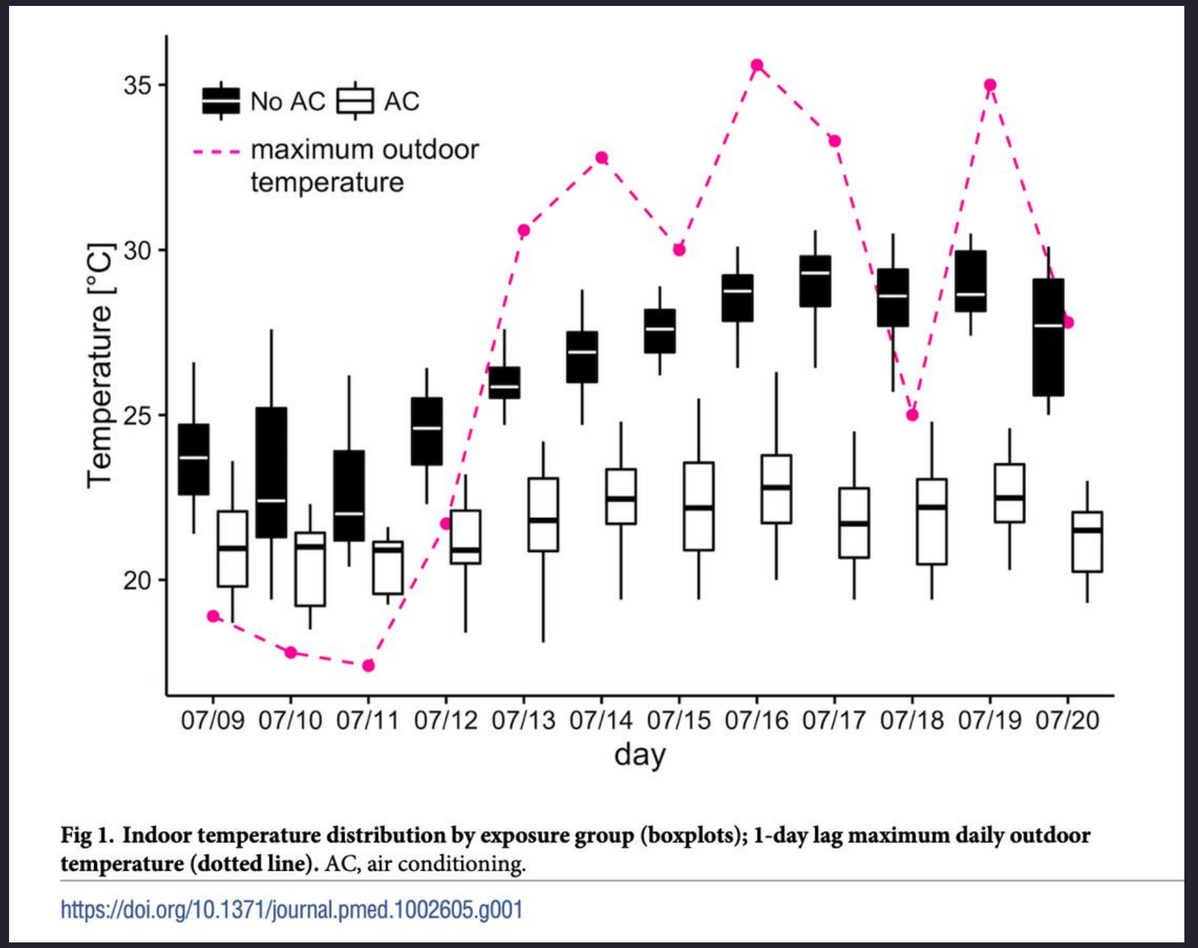
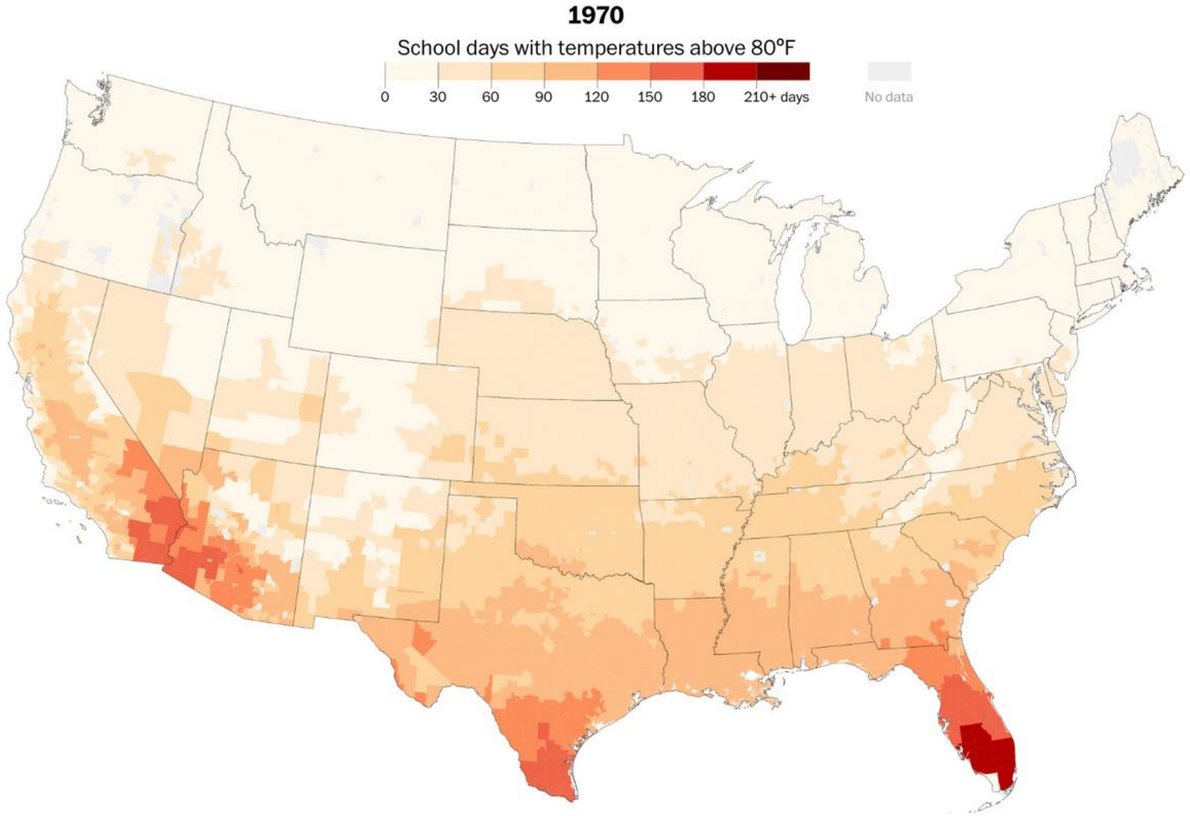


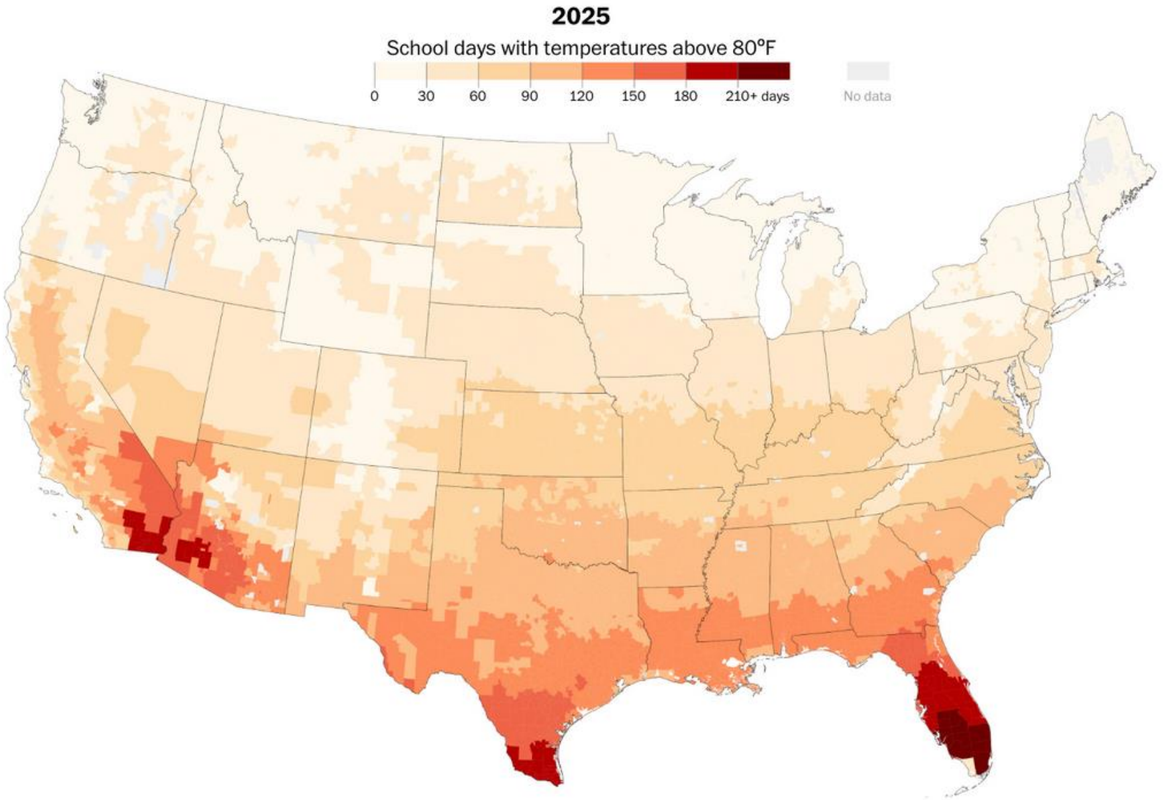
Fig 1. Indoor temperature distribution by exposure group (boxplots); 1-day lag maximum daily outdoor temperature (dotted line). AC, air conditioning.

https://doi.org/10.1371/journal.pmed.1002605.g001

Vant-Hull et al., 2018, BAMS, DOI:10.1175/BAMS-D-16-0280.1; Cedeno-Laurent et al., 2018, *PlosMED*, https://doi.org/10.1371/journal.pmed.1002605



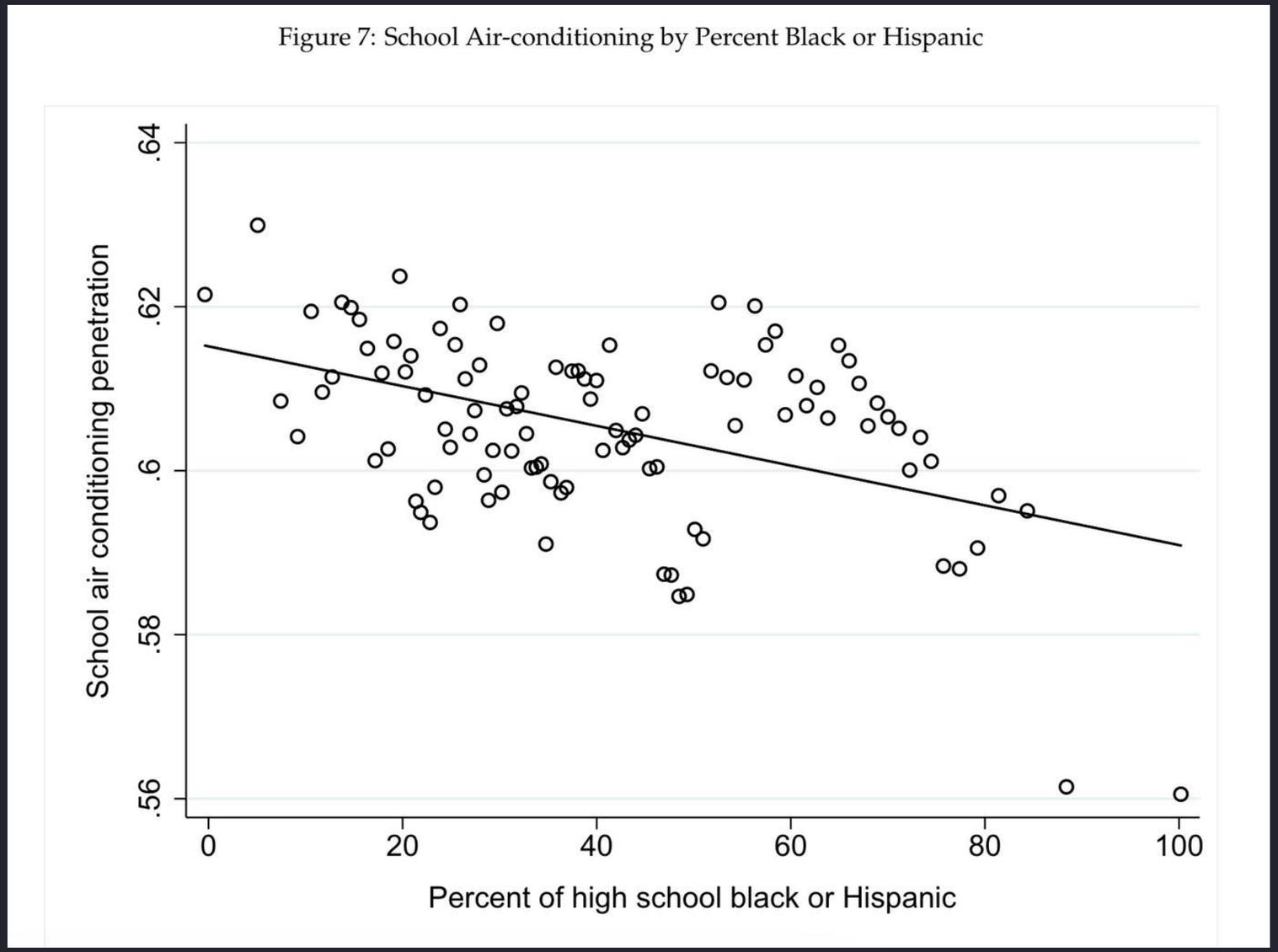
Nearly 40 percent of schools in the United States were built before the 1970s, when temperatures were cooler and fewer buildings needed air conditioning.



That has changed. In recent decades, heat has crept northward, increasing the number of school days with temperatures above 80 degrees Fahrenheit.

https://www.washingtonpost.com/climate-environment/interactive/2024/school-temperatures-heat-climate-change/

Black & Hispanic students are **1.6 percentage points more likely** than white students to be in schools with inadequate air-conditioning, which is not explained by income



Goodman et al., 2019, *NBER*, https://www.nber.org/system/files/working_papers/w24639/w24639.pdf

The temperature in an elementary school classroom in Philadelphia during a September 2023 heatwave. (The Philadelphia Federation of Teachers' Healthy Schools Tracker App)

The Washington Post
Democracy Dies in Darkness

CLIMATE LAB

Schools that never needed AC are now overheating. Fixes will cost billions.

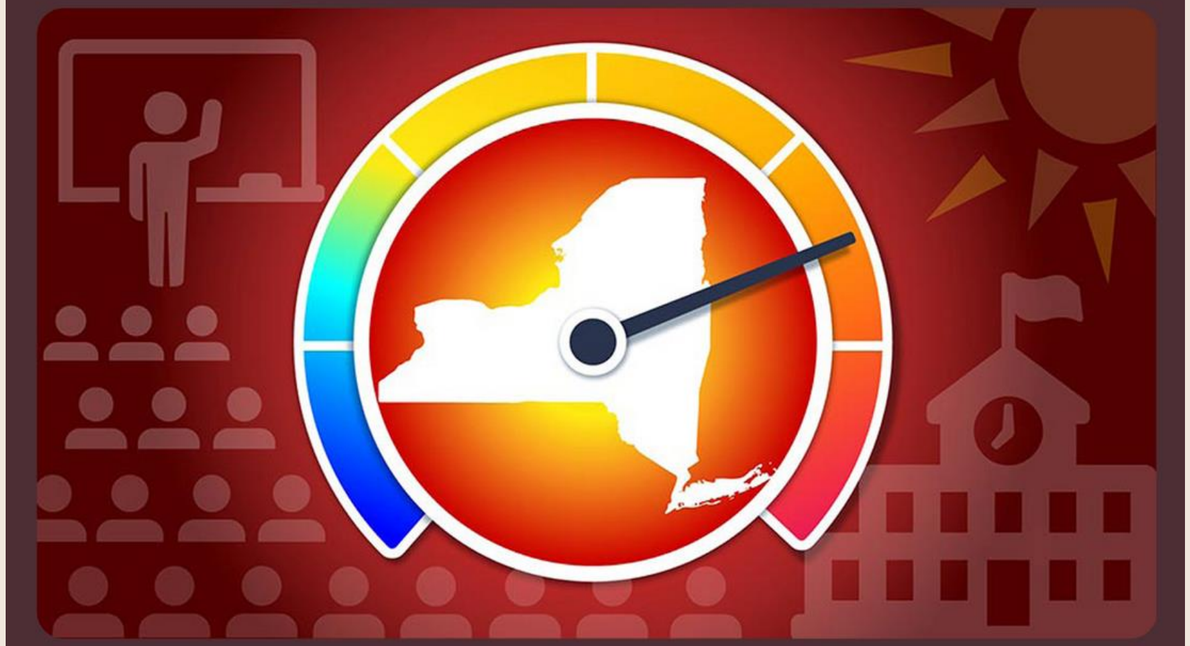
As heat waves creep north, they are baking schools that previously did not need air conditioning. Fixing the problem will be neither cheap, nor easy.

Northern schools are experiencing hotter days during the school year ***AND*** have buildings that are prone to overheating

"We have had situations where it's been 88 degrees outside but the real feel in the classrooms is well over 90 degrees because of the humidity," said Shari Obrenski, president of the Cleveland Teachers Union.

https://www.washingtonpost.com/climate-environment/interactive/2024/school-temperatures-heat-climate-change/

nysut



Overheated: Excessive Classroom Heat

Personal stories of the effects of extreme temperatures in our schools submitted by educators, students and parents from across New York state.

https://tinyurl.com/nysut-heatbook

NEW JERSEY

Long Island School Is Latest in Tri-State to Be Exposed to Be Mold

By **Greg Cergol** • Published September 26, 2018 • Updated on September 26, 2018 at 9:09 pm

LOCAL NEWS

Concerned Parents Say Mold Is Sickening Students, Teachers Alike At Long Island Middle School

CBS NEWS NEW YORK

September 25, 2018 / 5:33 PM EDT / CBS New York

The Connectquot school district confirmed mold was found in classrooms, hallways, the cafeteria and the auditorium inside Oakdale-Bohemia Middle School, blaming it on high temperatures and high levels of humidity this summer.

Chris Johnson's eighth-grade son has also been feeling ill: "Recently, he came home and he started having breathing issues -- coughing, wheezing -- which he never had before," said Johnson.

And the teachers' union president said some of his colleagues are suffering as well.

Officials say excessive summer heat and humidity is to blame. Photos show mold growing on blackboards in classrooms, in stairwells, in the cafeteria, and under floor tiles. Even after professional cleaning, air testing, and an "all clear" sign, more mold has turned up.

https://www.nbcnewyork.com/local/mold-school-long-island-oakdale-bohemia/1821470/
https://nyscheck.org/school-indoor-air-quality/
https://www.cbsnews.com/newyork/news/oakdale-bohemia-middle-school-mold/

How does heat make you feel?

Lancet Countdown on Climate and Health, https://www.thelancet.com/countdown-health-climate

Source: https://www.epa.gov/children/protecting-childrens-health-during-and-after-natural-disasters-extreme-heat;
https://ceh.unicef.org/spotlight-risk/extreme-heat

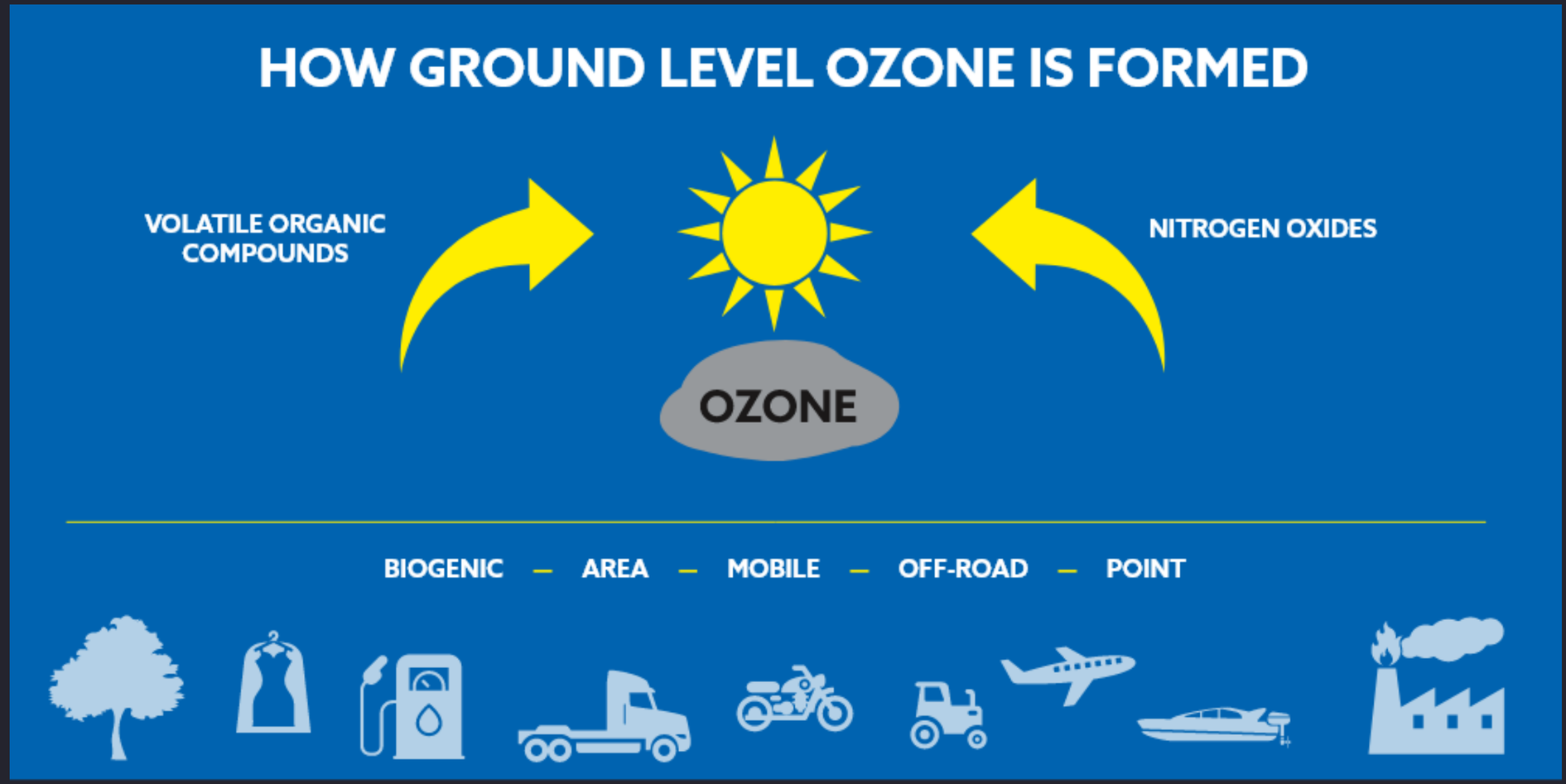
We begin to see the impacts of heat on the human body around ~80F, even among the healthiest of individuals.

A child's body temperature rises 3-5X faster than an adults.

A hot day has been associated with a 30% higher rate for heat-related illness emergency department visits among children compared to the local median temperature

https://cnycentral.com/news/local/new-york-state-heat-hot-temperatures-school-buildings-classrooms-air-conditioning-teachers-students-parents-legislation-union ; Stowell et al., 2022, Env Research: Health, DOI 10.1088/2752-5309/ac78fa

There are higher concentrations of air pollutants, like ozone, on hot, sunny days.



https://www.washingtonpost.com/climate-environment/interactive/2024/school-temperatures-heat-climate-change/

LA ist

HEALTH

After A Child's Death, California Weighs Rules for Phys Ed During Extreme Weather

By Samantha Young | KFF Health News
Published May 15, 2024 12:05 PM

'He passed out': Syracuse family says student suffered in hot classroom

by Mary Kielar | Fri, June 21st 2024 at 5:31 PM
Updated Fri, June 21st 2024 at 5:57 PM

As temperatures climbed into the 90s that morning, a physical education teacher instructed Yahushua to run on the blacktop. His friends told the family that the sixth grader had repeatedly asked the teacher for water but was denied, his parents said.

The school district has refused to release video footage to the family showing the moment Yahushua collapsed on the blacktop. He died later that day at the hospital.

Yahushua Robinson was an energetic boy who jumped and danced his way through life. Then, a physical education teacher instructed the 12-year-old to run outside on a day when the temperature climbed to 107 degrees.

https://laist.com/news/health/after-a-childs-death-california-weighs-rules-for-phys-ed-during-extreme-weather

How does heat make you think?

Heat impairs our cognitive function and reaction time

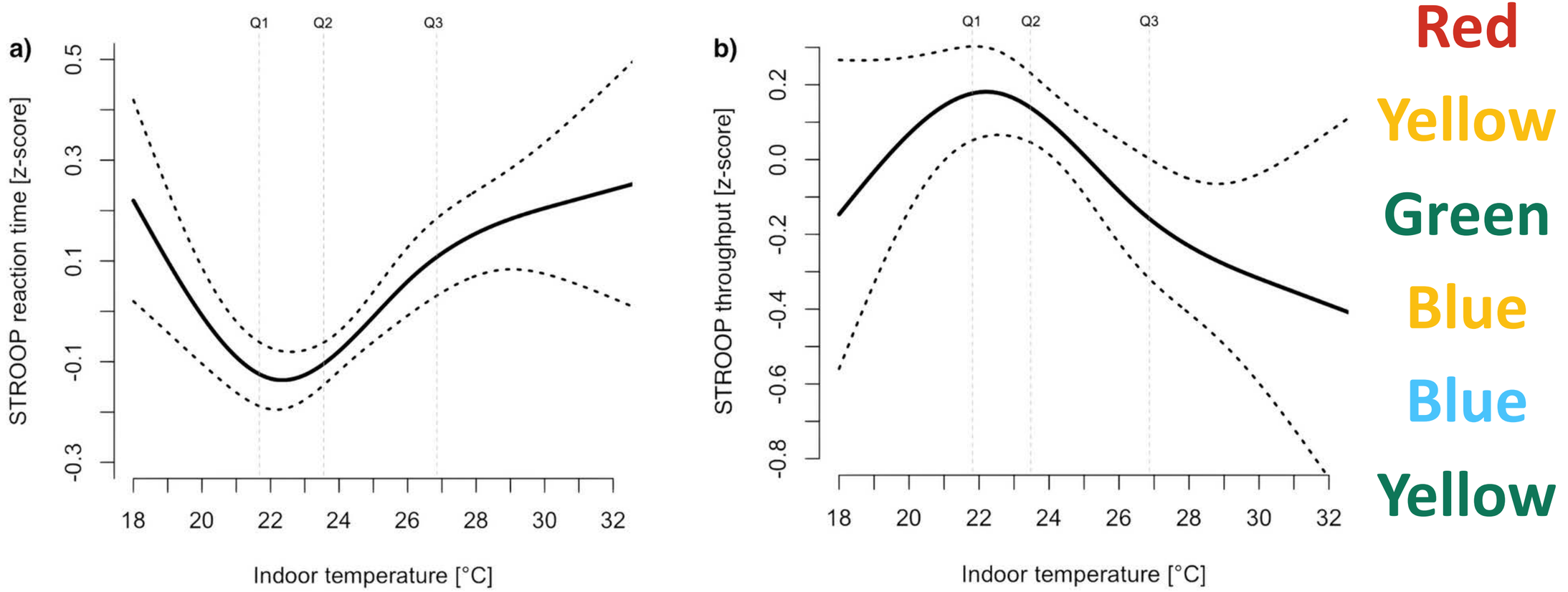
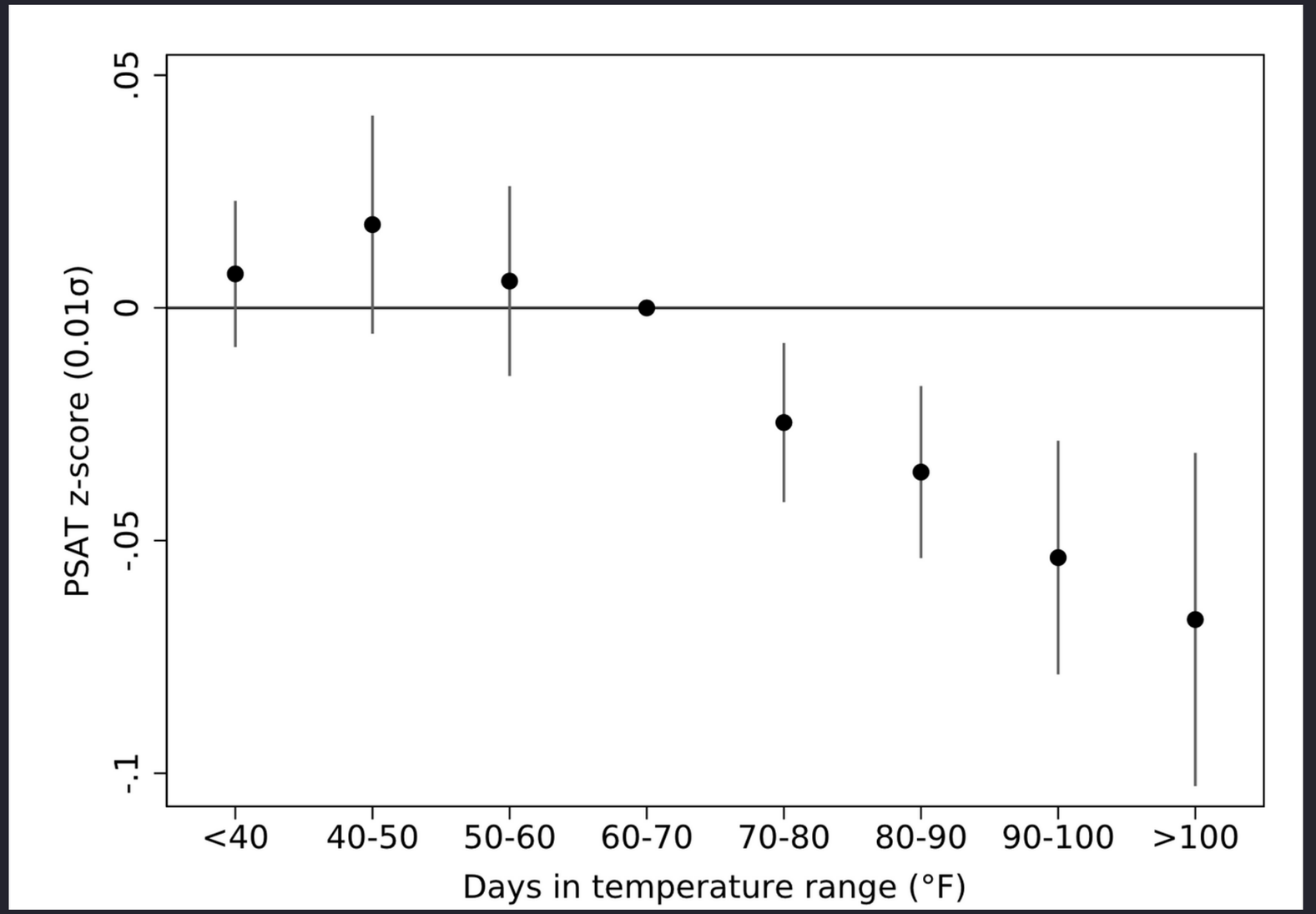


Fig 3. CS relationships between maximum indoor temperature and (a) STROOP reaction time and (b) STROOP throughput predicted from the fitted environmental exposure models in Table 3. CS, cubic spline; STROOP, the Stroop color-word test.

https://doi.org/10.1371/journal.pmed.1002605.g003

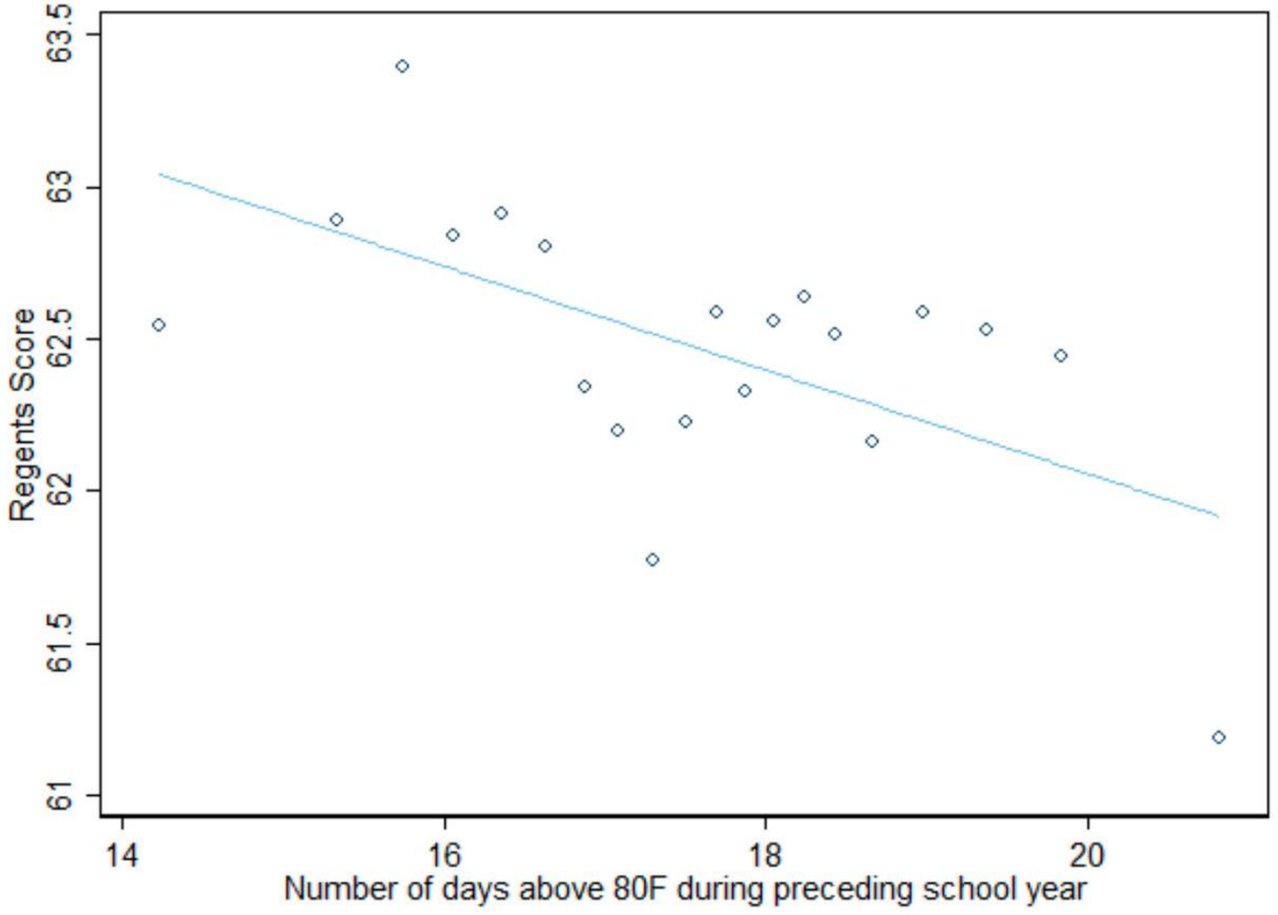
Students score lower on standardized tests following hotter school years



Goodman et al., 2019, *NBER*, https://www.nber.org/system/files/working_papers/w24639/w24639.pdf

Warmer temperatures during the school year are associated with lower Regents Exams scores

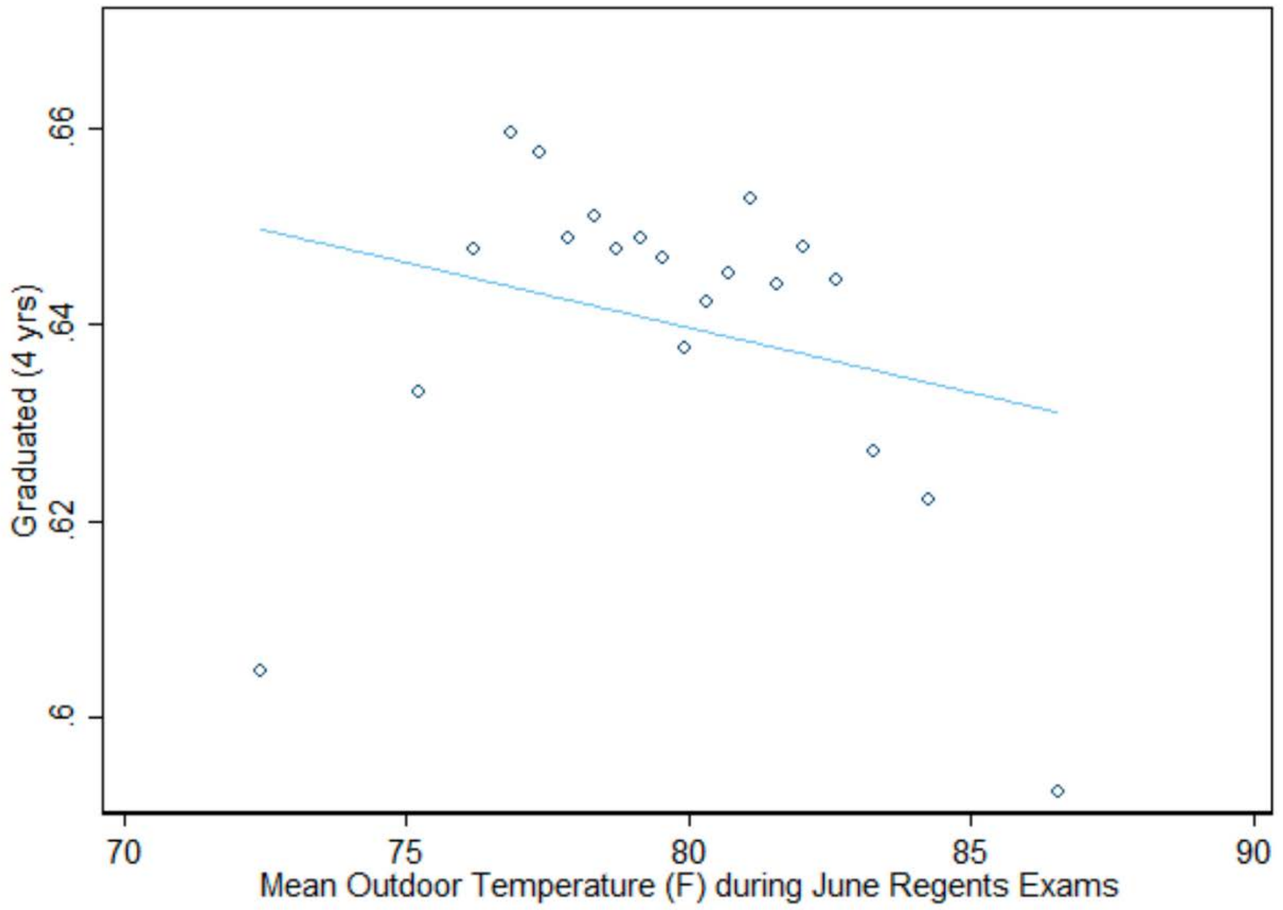
Figure 8: Cumulative Learning Impacts of Heat Exposure during the Preceding School Year (Regents Exam Scores for NYC Public High School Students)



Park, 2016, https://www.switzernetwork.org/sites/default/files/file-attachments/temperature_test_scores_and_educational_attainment_-_j_park_-_9-13-2016.pdf

Warmer temperatures during Regents Exams are associated with lower graduation rates

Figure 7 4-year Graduation Status and Average Exam-Time Outdoor Temperature by student for NYC Public High School Students



Park, 2016, https://www.switzernetwork.org/sites/default/files/file-attachments/temperature_test_scores_and_educational_attainment_-_j_park_-_9-13-2016.pdf

Students may miss more school on hot days

"On those really really hot days, our attendance is low because kids don't want to boil in a classroom and asthmatic kids are being kept home by their parents," said Olney High School teacher Sarah Apt, who also has asthma. "Those are days I have used my inhaler and kind of take it slower."

https://www.washingtonpost.com/climate-environment/interactive/2024/school-temperatures-heat-climate-change/

Absences increase on hot days

- No school AC
- Low home AC penetration rates
- Low-income students
- Black and Hispanic students

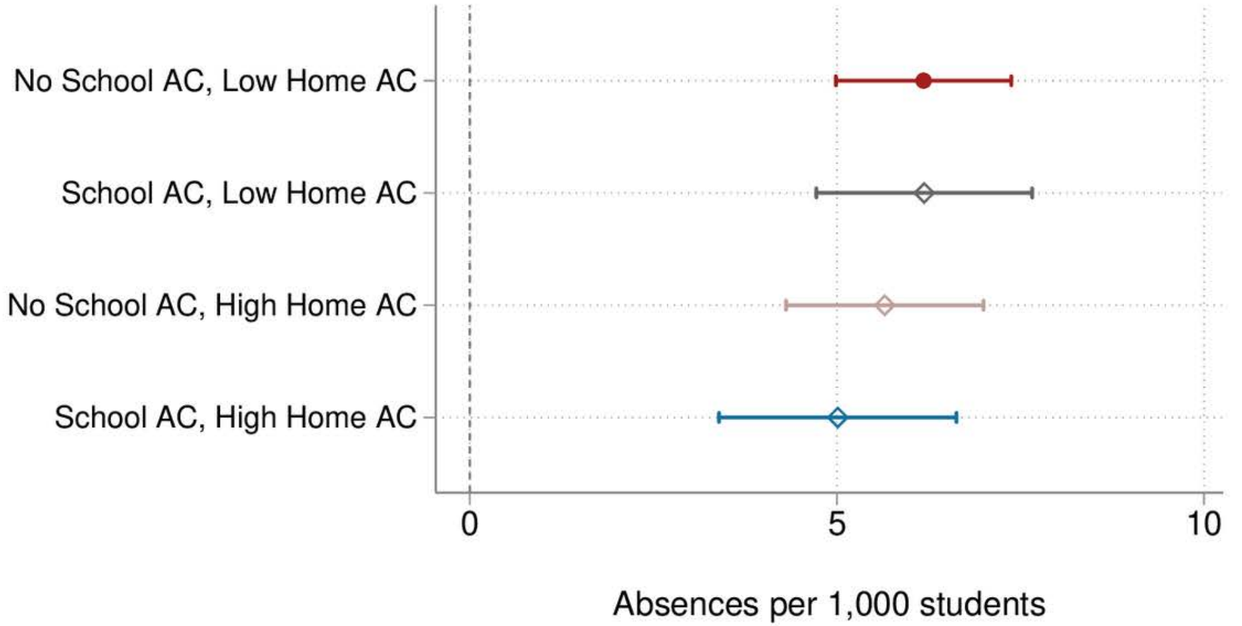


FIGURE A6. Heat, Absences, and Access to Air Conditioning

McCormack, 2024, https://kristen-mccormack.com/files/mccormack_jmp.pdf

CNY SCHOOLS & COLLEGES

CNY heat wave: Some Syracuse city schools will switch to half-days next week

Updated: Jun. 16, 2024, 7:22 a.m. | Published: Jun. 14, 2024, 5:24 p.m.

NEWS // EDUCATION

Some Capital Region schools dismissing early this week because of heat wave

By **Kathleen Moore**, *Staff Writer*
June 17, 2024

Several schools across the region to close early this week due to heat wave

WRVO | By Jason Smith, Ellen Abbott, Abigail Connolly
Published June 17, 2024 at 2:19 PM EDT
Updated June 18, 2024 at 9:13 AM EDT

Climate change projections are associated with average reductions in academic achievement of 4-7% per child, relative to average learning gains during the school year.

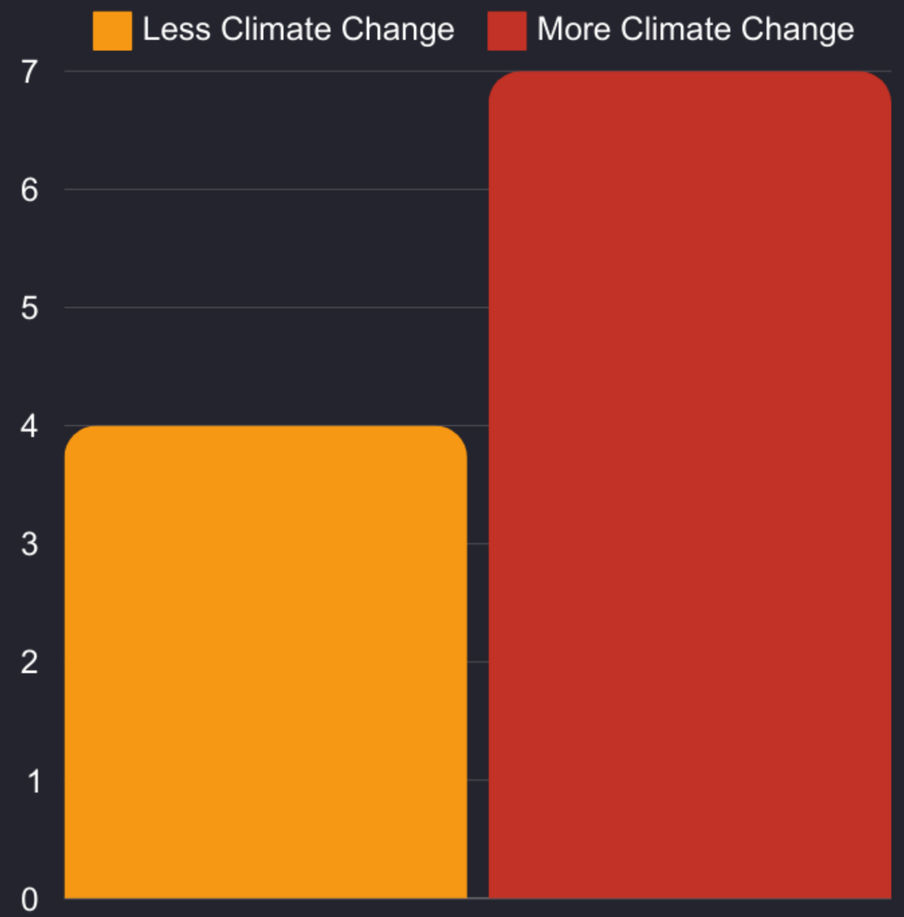
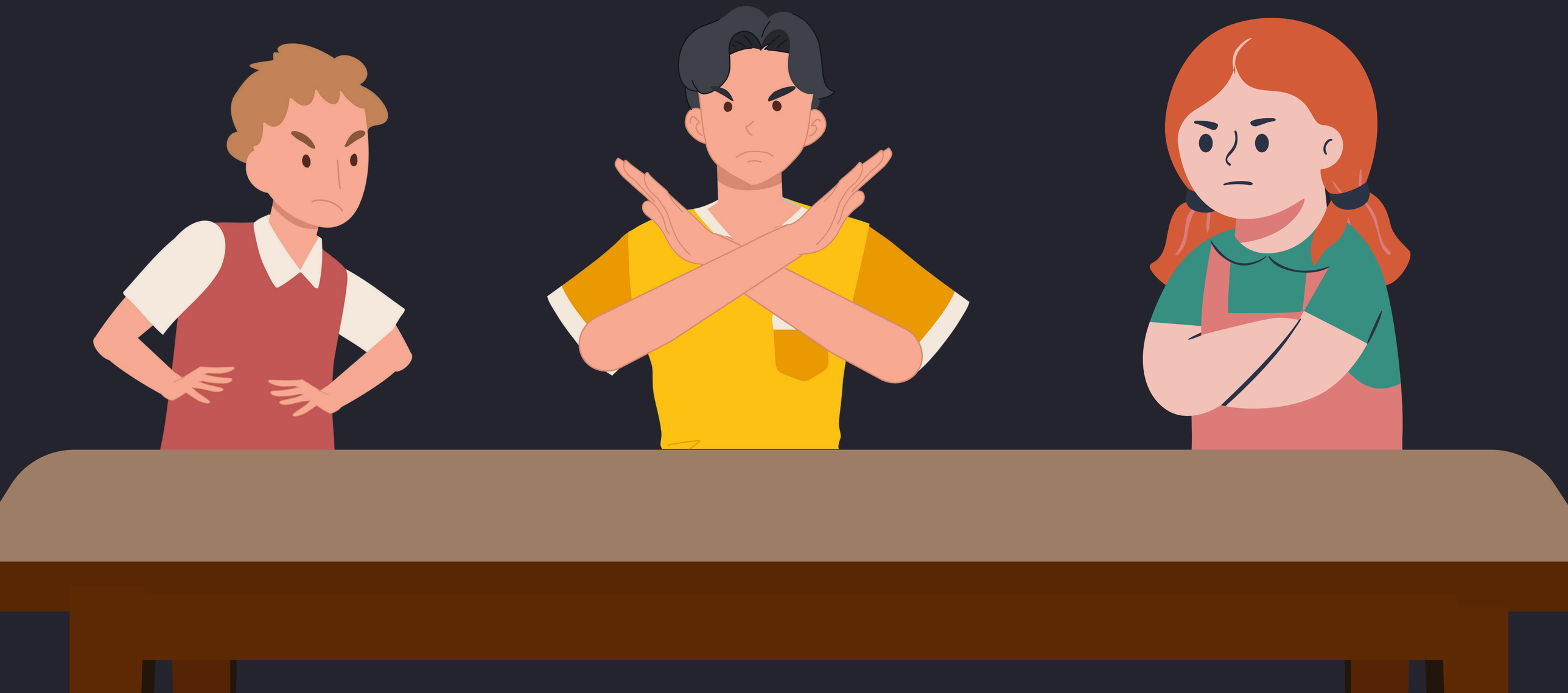


Figure 7: Projected Additional Impacts of Heat on Learning Among Children

Degrees of Global Warming	Lost Future Income Per Year Per Child	Total Lost Future Income Per Year Across Graduating High School Students
2°C	$1,300 *($380 to $2,400)*	$6.9 billion *($1.9 to $12.7 billion)*
4°C	$2,300 *($1,600 to $3,200)*	$13.4 billion *($8.9 to $18.3 billion)*

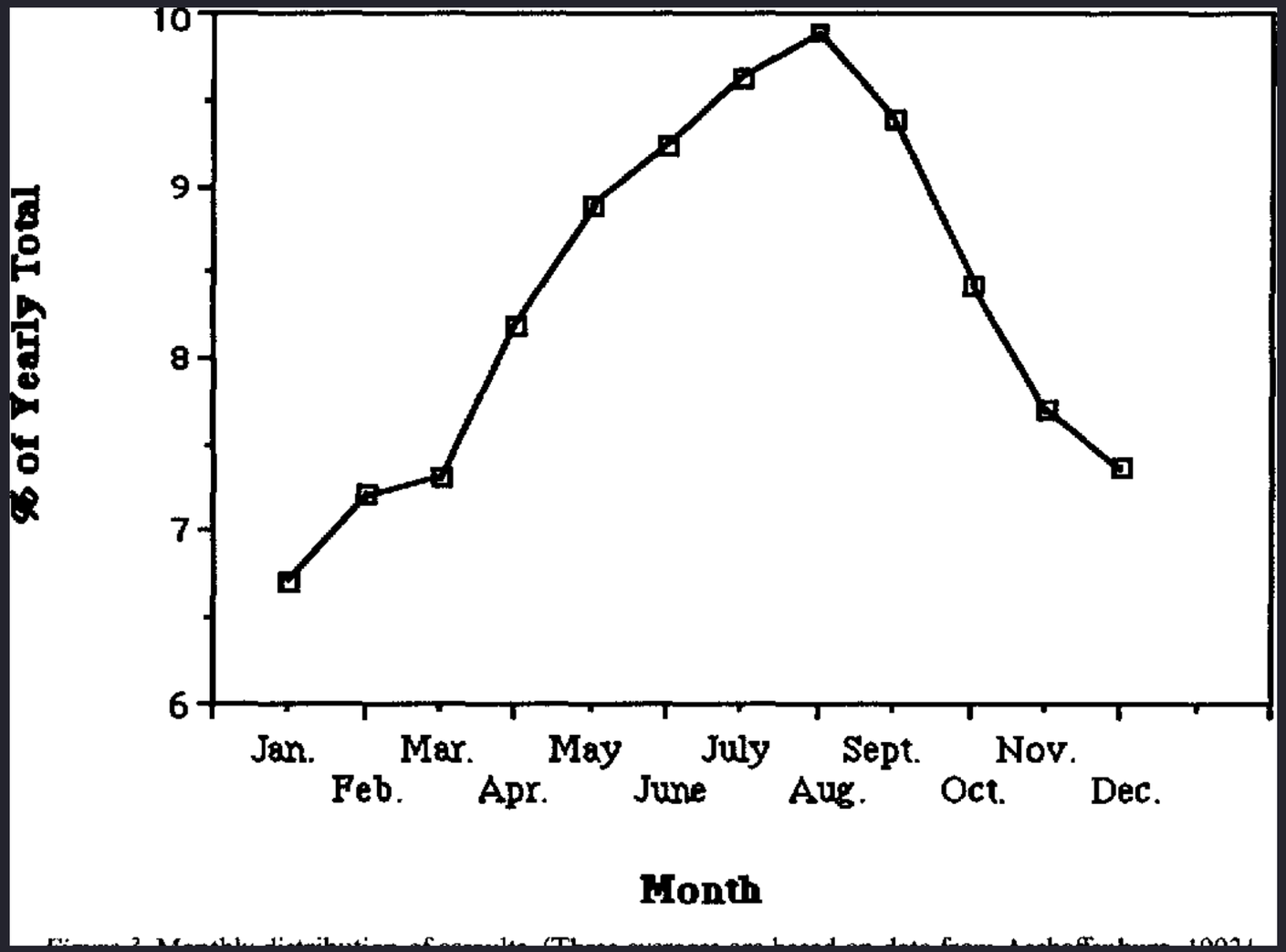
https://www.epa.gov/cira/climate-change-and-childrens-health-and-well-being-united-states-report?itid=lk_inline_enhanced-template

How does heat make you act?



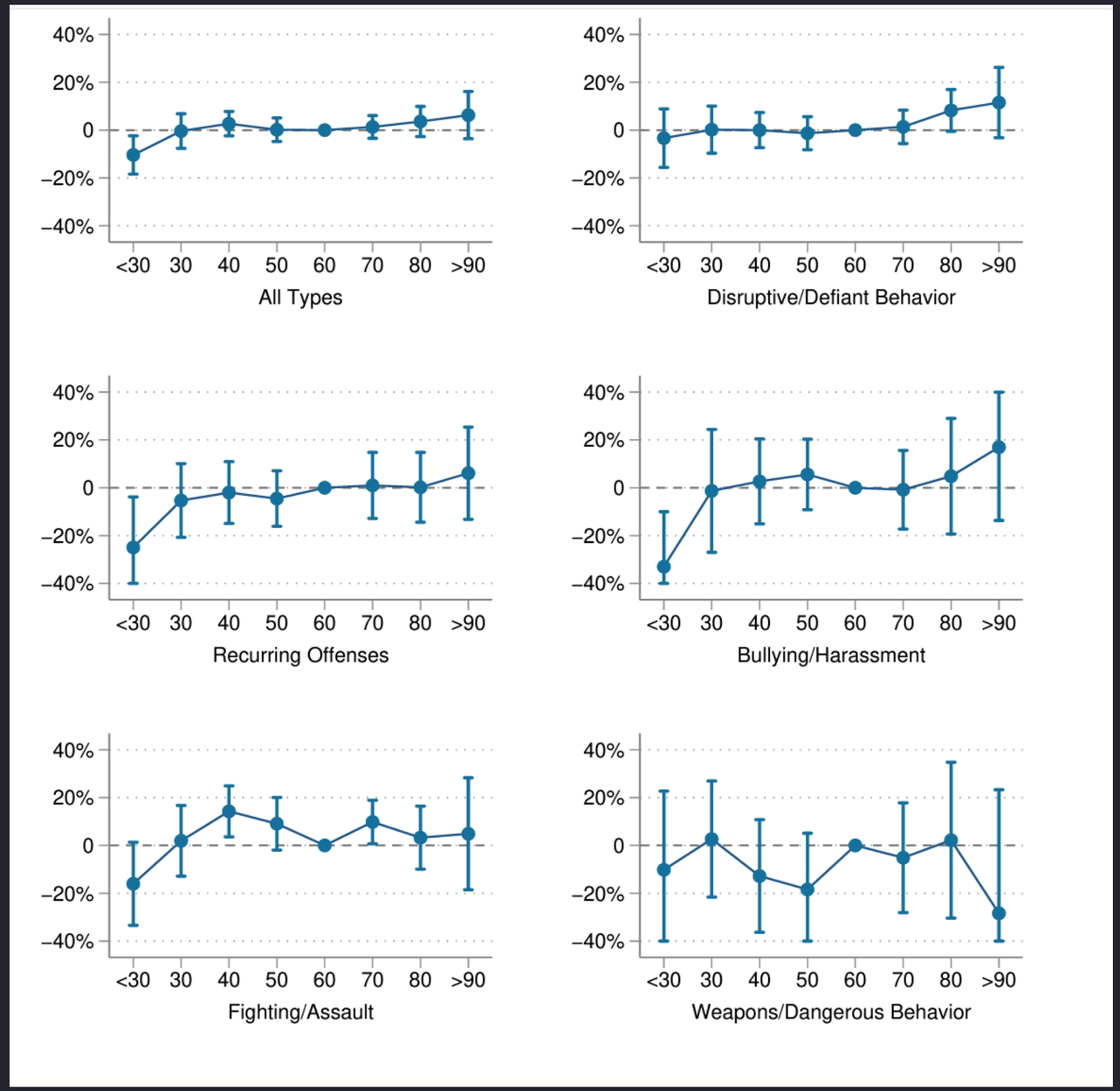
Heat has been associated with aggression, violence, irritability, anger, and other impacts on mental wellbeing.

Average monthly distribution of assaults.



Anderson, 1989, DOI: 10.1037/0033-2909.106.1.74

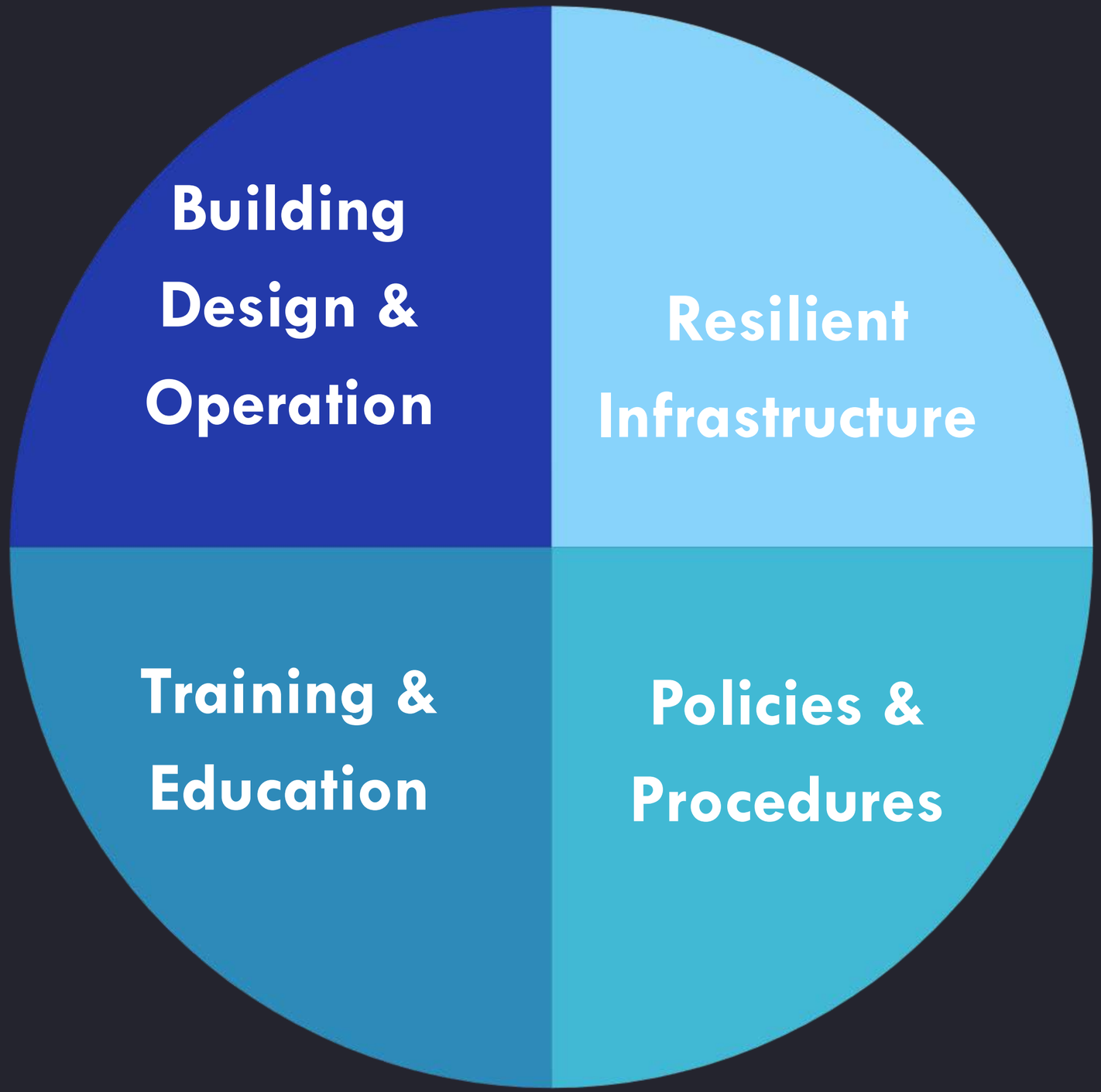
Disciplinary referrals increase on hot days, with a significant effect only seen among students attending schools without AC.

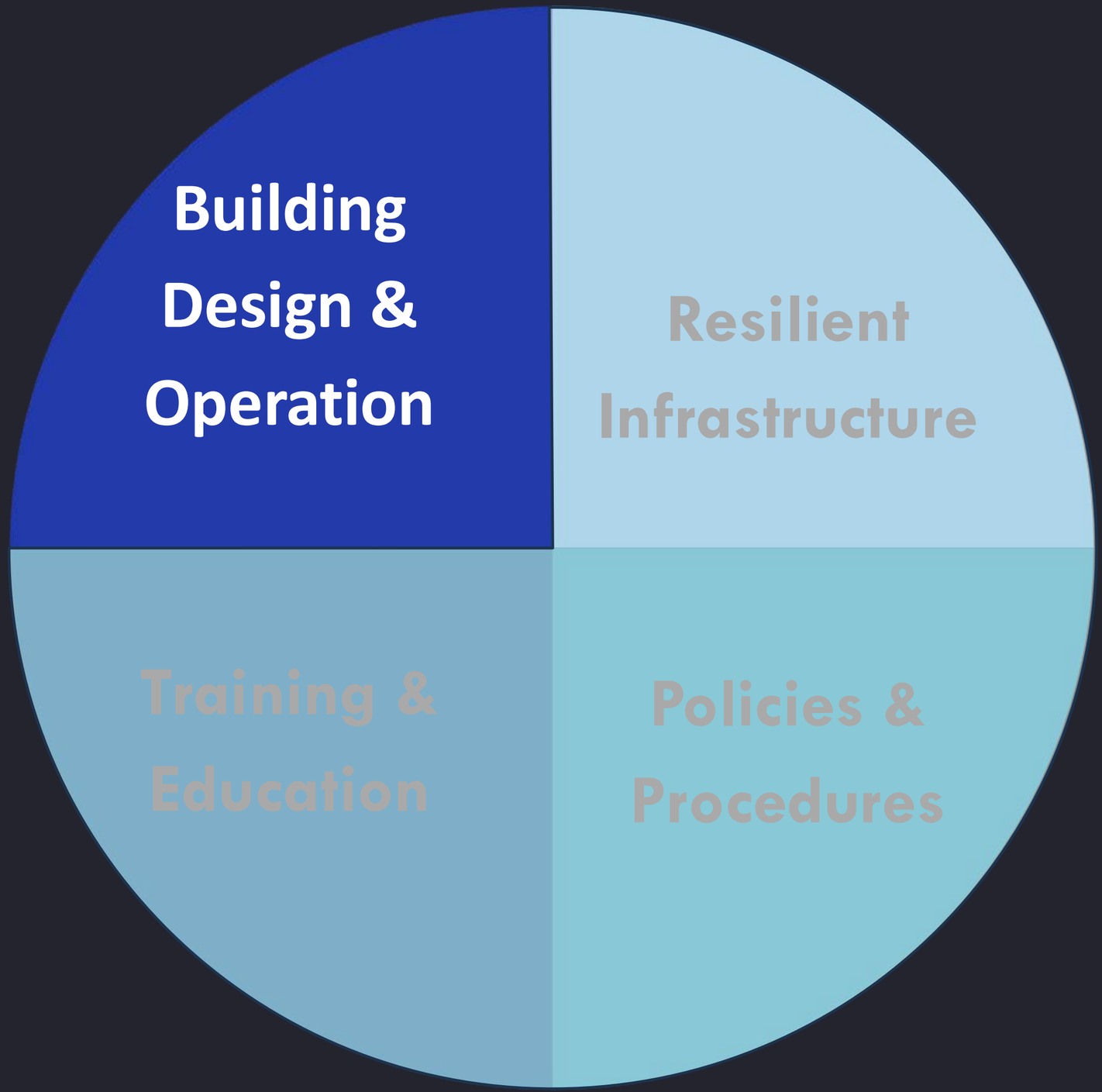


McCormack, 2024, https://kristen-mccormack.com/files/mccormack_jmp.pdf

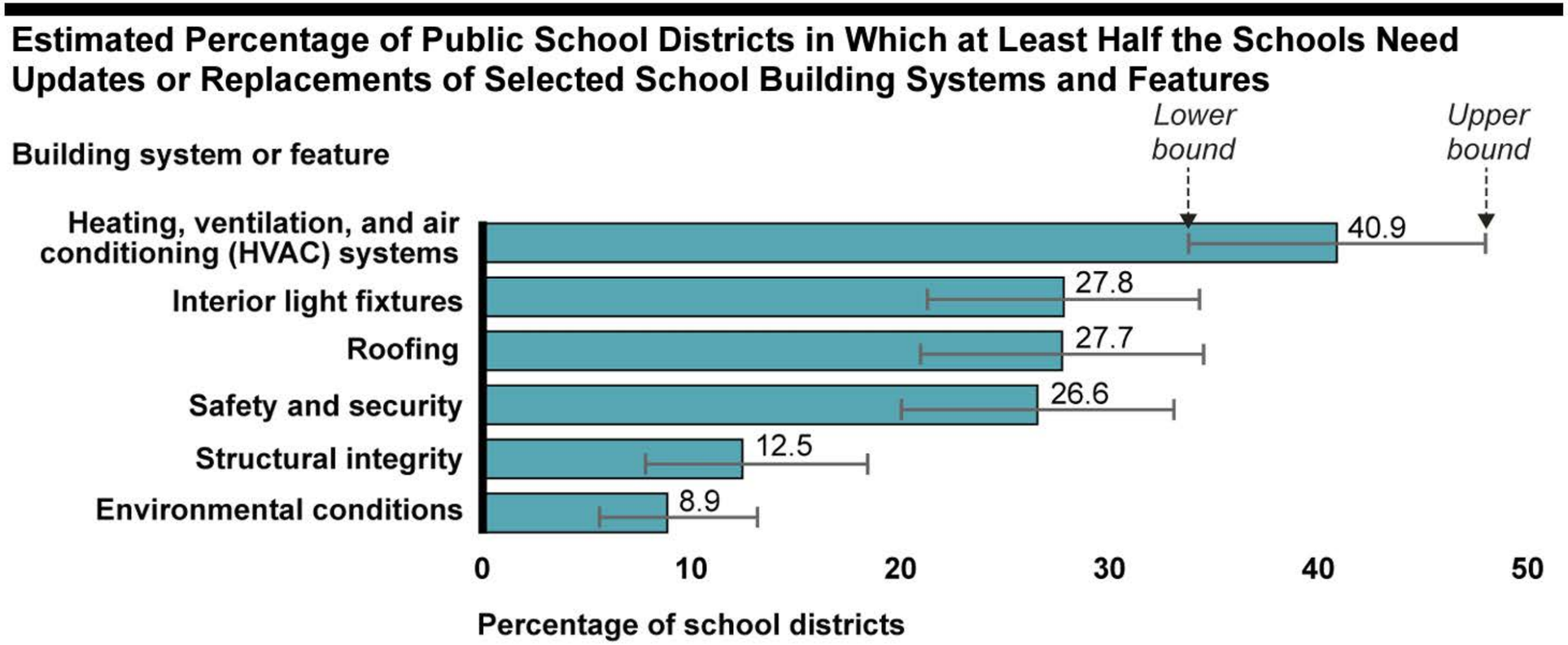
Heat impacts us in many ways

GOOD NEWS

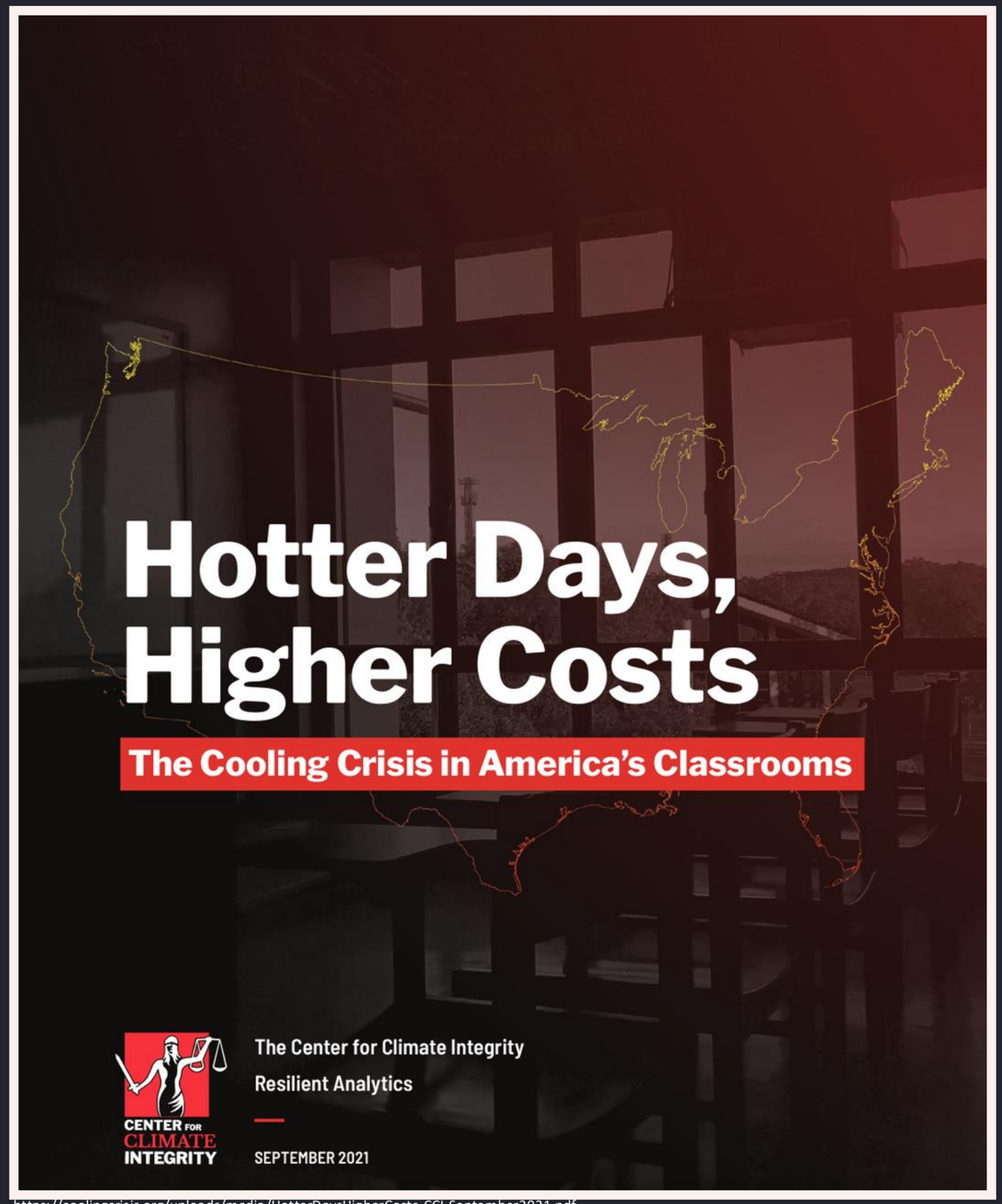

Building Design & Operation
Resilient Infrastructure
Training & Education
Policies & Procedures


Building Design & Operation
Resilient Infrastructure
Training & Education
Policies & Procedures

Many schools are in need of building infrastructure updates to HVAC systems

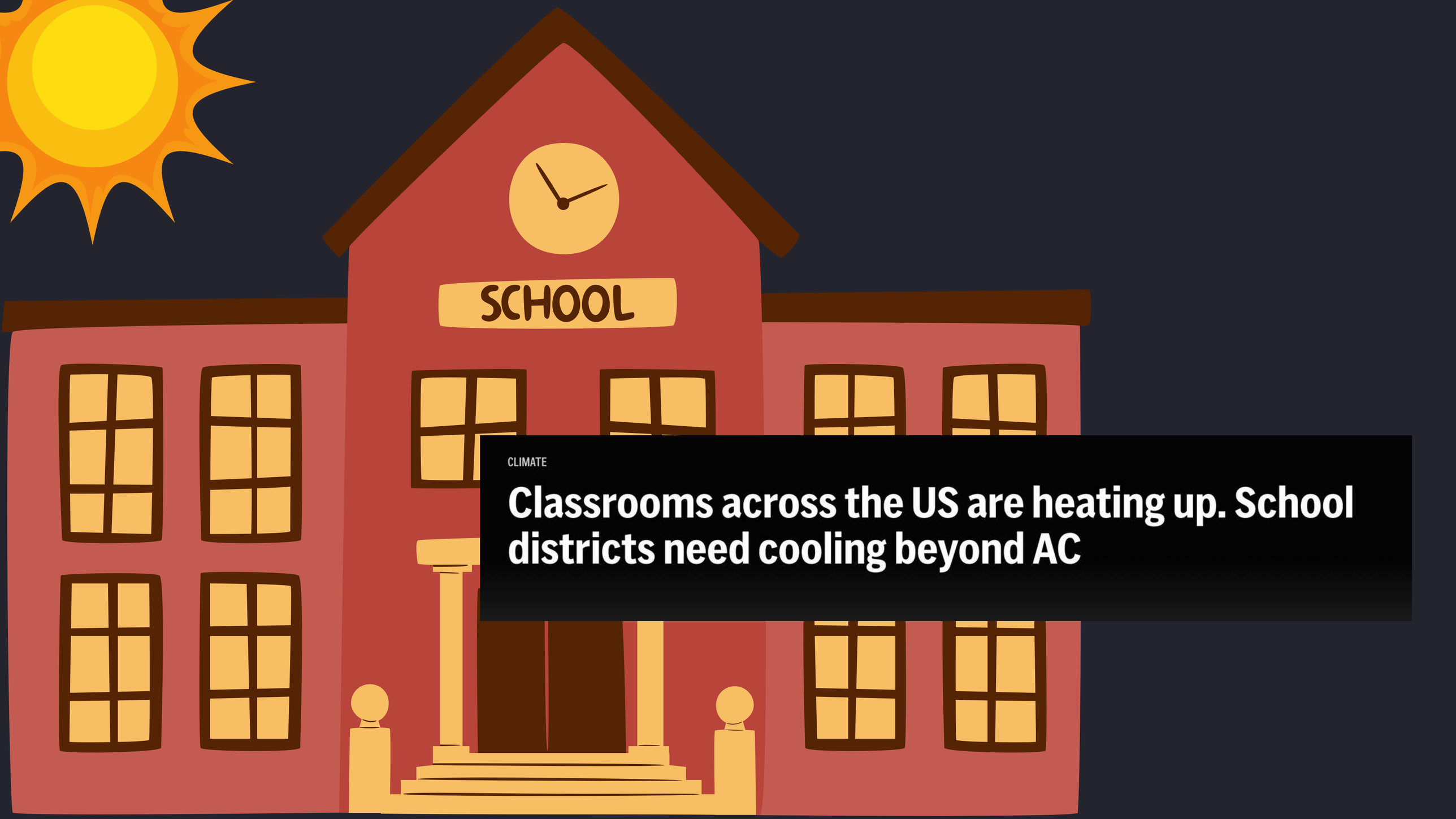


https://www.gao.gov/assets/gao-20-494.pdf?itid=lk_inline_enhanced-template



https://coolingcrisis.org/uploads/media/HotterDaysHigherCosts-CCI-September2021.pdf

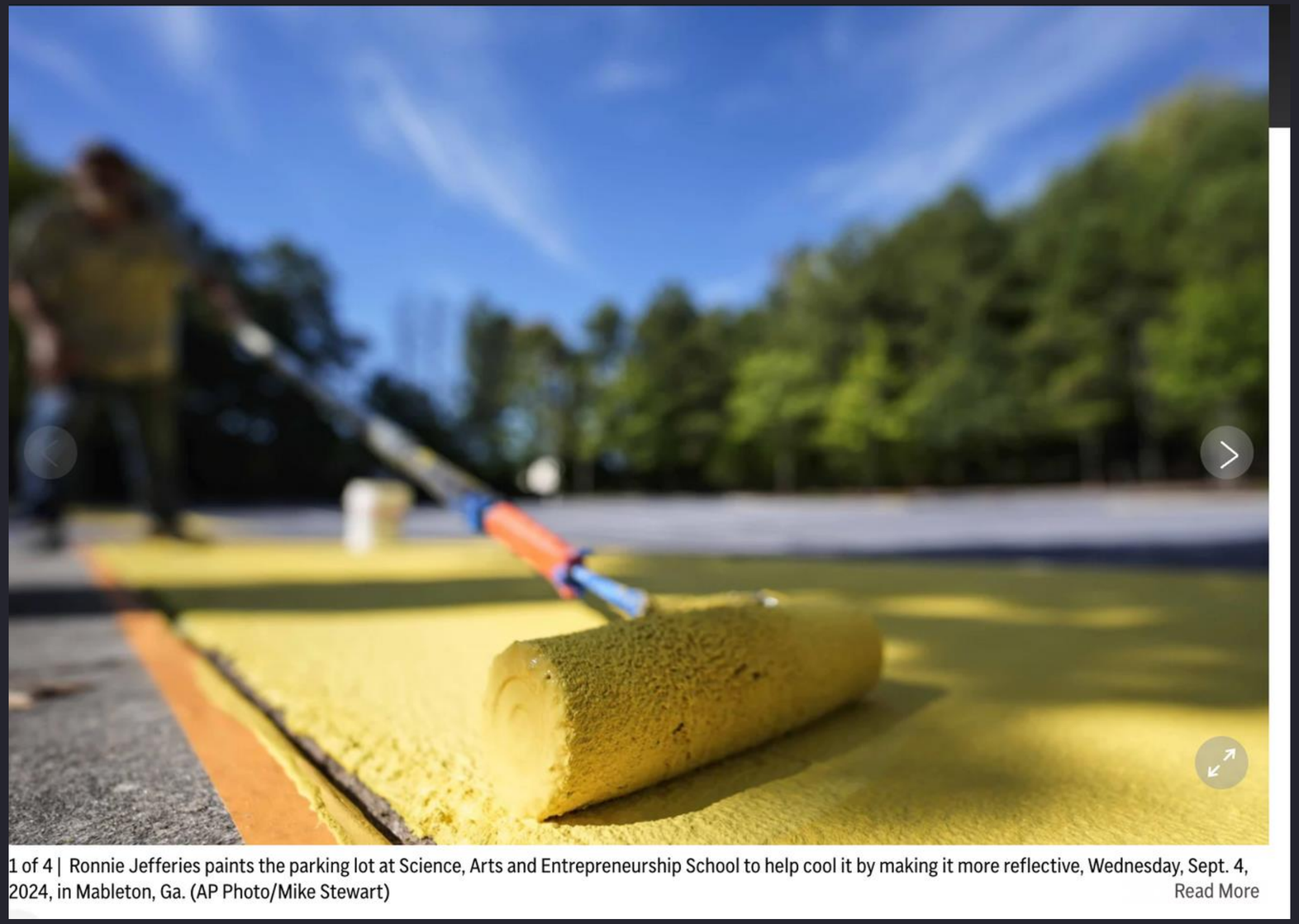
New York State faces more than $1 billion in school cooling system costs by 2025, and an additional $100 million per year in operations and maintanence



CLIMATE

Classrooms across the US are heating up. School districts need cooling beyond AC

Reflective coatings on roofs, athletic courts have been found to reduce temperatures by 20+F



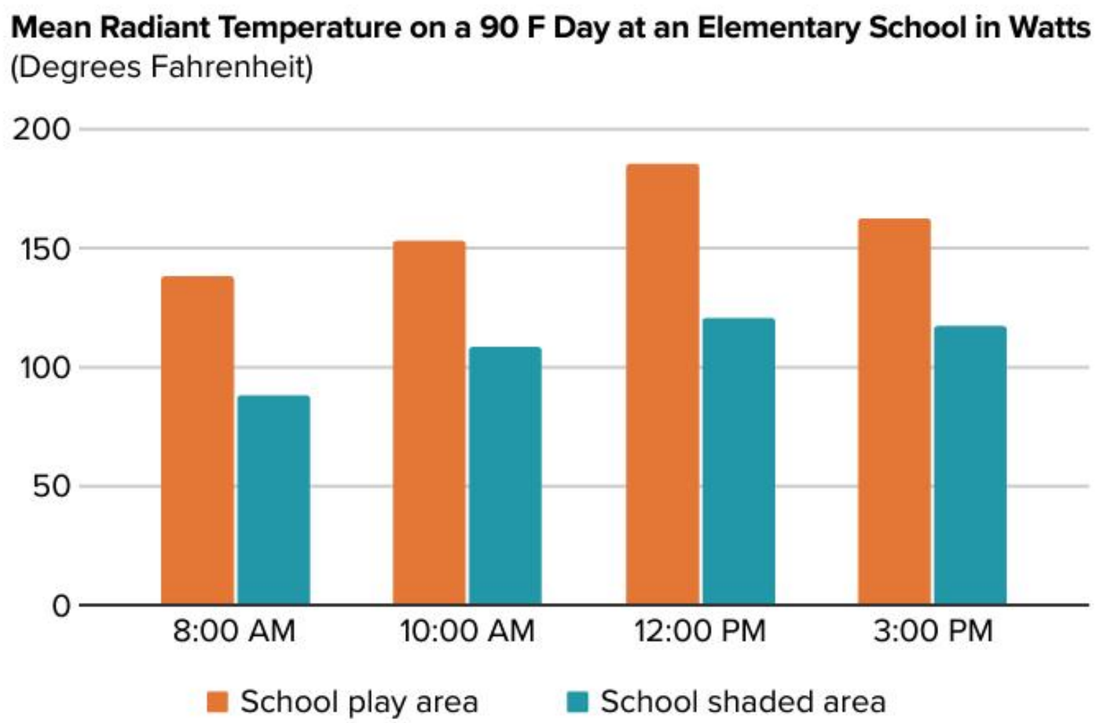
1 of 4 | Ronnie Jefferies paints the parking lot at Science, Arts and Entrepreneurship School to help cool it by making it more reflective, Wednesday, Sept. 4, 2024, in Mableton, Ga. (AP Photo/Mike Stewart)

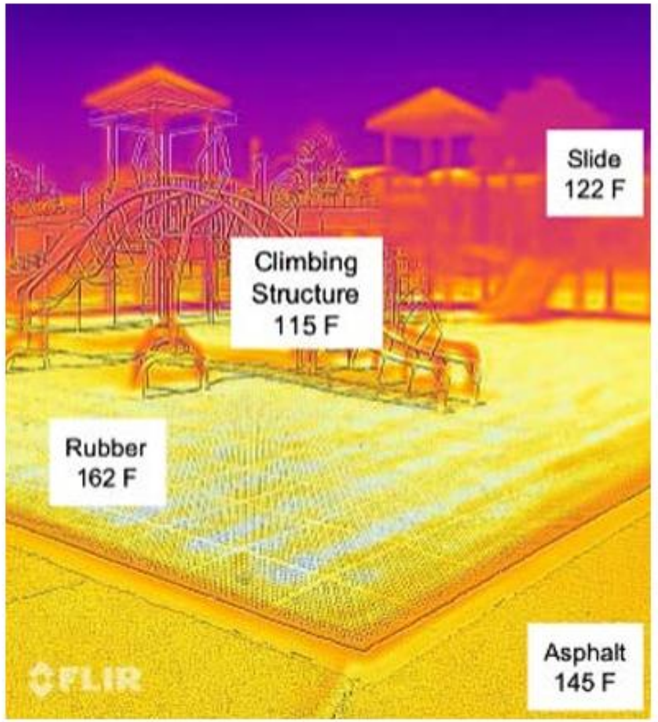
Read More

https://apnews.com/article/climate-heat-schools-cooling-solutions-ac3d7684c1a9bfd29e1219d05e304fc0

Prioritize heat+health in all decisions: shading, materials, design

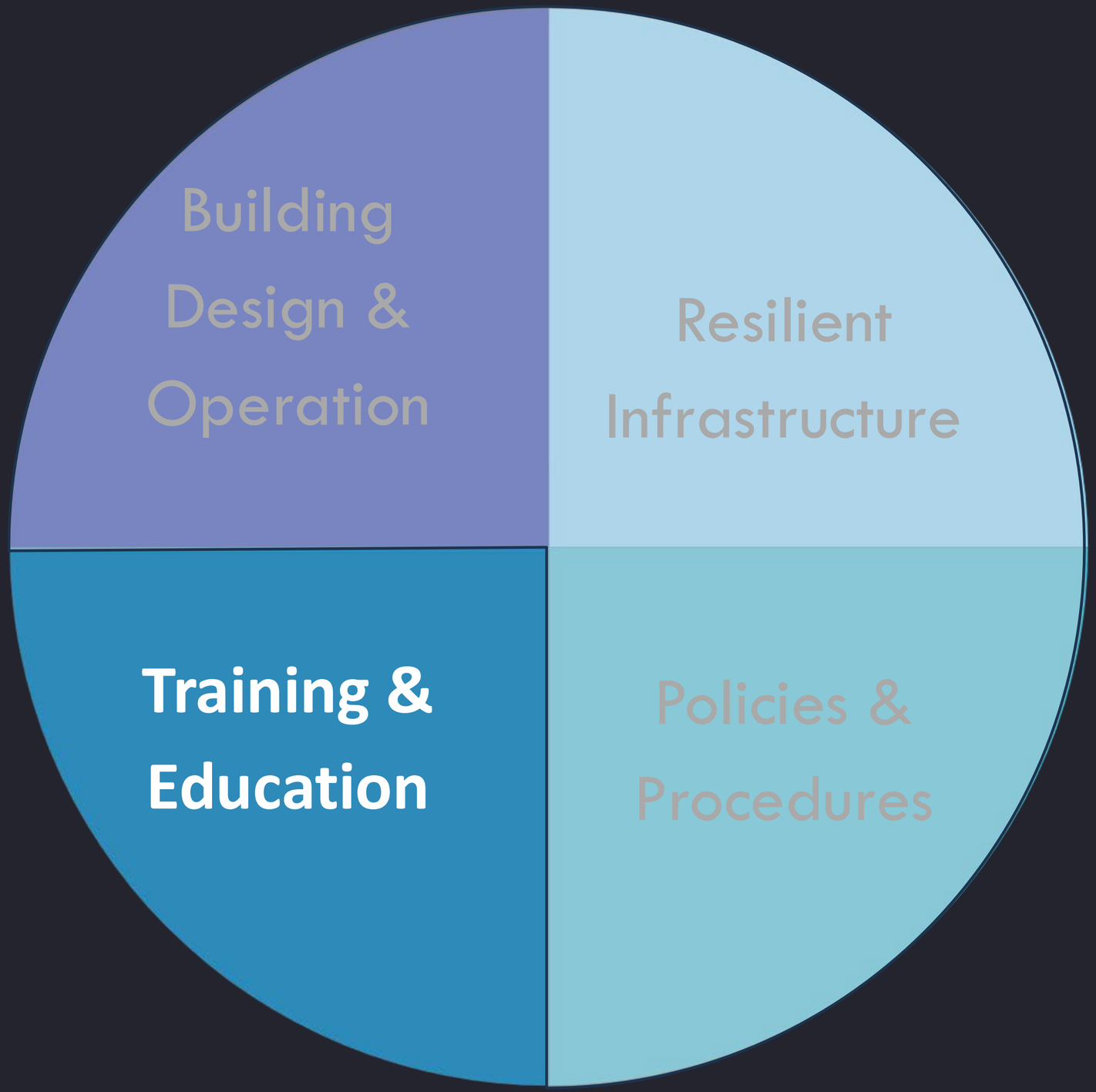
Figure 1. Illustrating heat burden from high surface temperatures in schoolyards with and without shade





Playgrounds and play equipment can reach dangerously high temperatures on hot days, but shade can help to reduce temperatures and mitigate risk. Source: V. Kelly Turner and Morgan Rogers, UCLA.

https://apnews.com/article/climate-heat-schools-cooling-solutions-ac3d7684c1a9bfd29e1219d05e304fc0


Building Design & Operation
Resilient Infrastructure
Training & Education
Policies & Procedures

Hot Weather Guidelines for Schools

Children take longer to adjust to hot environments than adults do, and their bodies reach core temperature much faster. Children's bodies have

Heat Illness Signs and Symptoms

Sunburn: Redness, pain, swelling of skin, blisters, fever and headaches.
Treatment: leave water blisters intact to speed healing and avoid infection. If blisters break, apply a dry sterile dressing. Refer serious cases to a physician.

Heat Cramps: heavy sweating can cause painful muscle cramps, usually in the legs, but possibly in the abdomen.
Treatment: apply firm pressure on cramping muscles or gently massage to relieve spasm; give sips of water, if nausea occurs discontinue sips of water, move person to a cooler place to rest. Observe the person carefully for changes in condition.

Heat Exhaustion: heavy sweating, weakness, cold, pale and clammy skin; weak pulse, fainting and vomiting.
Treatment: get person out of sun, move person to a cooler environment, lay person down and loosen clothing, apply cool wet cloths, give sips of water. If nausea occurs, discontinue sips of water; if vomiting continues, seek immediate medical attention.

Heatstroke: severe medical emergency, hot, dry skin, rapid and strong pulse, possible unconsciousness.
Treatment: **Call 911, if unable to get person to medical help immediately, do the following:**
* Move person to a cooler environment
* Remove outer clothing
* Reduce body temperature using lukewarm (not cold) water to bathe/sponge the person
* Do not give fluids

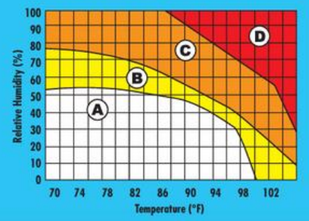
Activity Guidelines

Fluid breaks should be scheduled for all practices and become more frequent as the heat and humidity levels rise.

Add 5°F to the temperature between 10:00 a.m. and 4:00 p.m. from mid-May to mid-September on bright, sunny days.

A. Children should receive a 5-10 minute rest and fluid break after every 25 to 30 minutes of activity.

B. Children should receive a 5-10 minute rest and fluid break after every 25 to 30 minutes of activity. Children should be in shorts and t-shirts (with helmet and shoulder pads only, not full equipment, if worn for activity).



C. Children should receive a 5-10 minute rest and fluid break after every 15 to 20 minutes of activity. Children should be in shorts and t-shirts only (with all protective equipment removed, if worn for activity).

D. Cancel or postpone all outdoor practices/games. Practice may be held in an air conditioned space.

UCLA Luskin Center for Innovation

POLICY BRIEF | MAY 2023

Protecting Californians with Heat-Resilient Schools

GUIDANCE FOR AN EQUITABLE AND EFFECTIVE STATE STRATEGY

California's K-12 Education System is Under-Prepared for Rising Temperatures

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The Scope of this Policy Brief

This brief highlights some, but not all, of what may be needed to address heat in schools. It is not intended to be fully
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Learning losses: When schools cannot maintain comfortable indoor temperatures, students' ability to learn suffers. Without cooling equipment in classrooms, hotter temperatures lead to a marked decline in learning outcomes. For example, when it is very hot, students perform worse on exams, which can lead to lower graduation rates.[3] Yet not every California school has adequate access to indoor cooling, making it impossible to maintain

Summary of Policy Action Areas

ACTION AREA 1

Track how schools in California experience extreme heat and the status of cooling interventions to understand evolving needs for heat management

Status quo: There is currently no statewide database for tracking which schools do and do not have air conditioning, appropriately shaded schoolyards, and other heat interventions. There is no sufficient inventory of school maintenance and repair needs, including no standard system for tracking which schools have air conditioners that do and do not function properly.[16] While school districts do report data on their facilities to the California Department of Education, the data is difficult to access and not granular enough to assess cooling needs.[17]

As a result, it is impossible to get a complete picture of the need for interventions and how much those interventions will cost. This lack of data hampers the state's ability to take action and leaves districts to fend for themselves, which further deepens inequities due to different resource levels. Addressing data and information gaps at a state level is a critical first step to inform effective and equitable policy, investments and other action areas highlighted in this document.

Recommendations: We recommend that the state develop a method for tracking information related to heat management in schools. This method might include adding new elements to existing data collection systems, such as the School Accountability Report Card.[18] This reporting mechanism already includes questions about school facility conditions. Adding explicit questions about air conditioning and other heat management approaches would enable the state and other agencies and organizations to better understand the need for and progress toward heat resiliency in schools.

Example Interventions to Address Heat in Schools

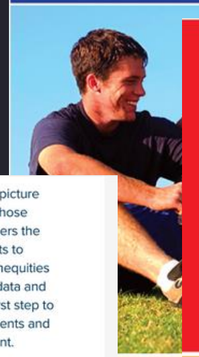
Built environment and nature-based interventions

- Improve school building envelopes (e.g., insulation, double-paned windows, window shading, and air sealing. From a broader resiliency perspective, ideally this would be done in combination with other health and safety upgrades to ensure good air quality (e.g., lead, mold, and asbestos remediation).
- Install cool roofs on schools.
- Plant trees to provide shade outdoors, both for the buildings and play areas.
- Install other outdoor shade structures, such as shade sails over playground equipment, outdoor dining, and other outdoor common areas.
- Decrease asphalt cover and increase permeable surfaces and natural ground cover, like gardens.
- Transition toward schoolyards with more trees and other greenery to reduce heat burden.[19,20]
- Install or improve cooling equipment (i.e., air conditioners or heat pumps), prioritizing energy-efficient equipment whenever possible.

Behavioral interventions

- During high-heat periods, modify activities, move inside to suitably cooled facilities, or reschedule outdoor activities (e.g., sports practices, games, outdoor play).
- Move children to air-conditioned rooms or cooler parts of buildings.
- Encourage children to take preventative behaviors, such as drinking water to stay hydrated.

Hot Weather Guidelines for Athletic Practice



Heat Related Terms

Heat Wave: More than 48 hours of high heat (90 degrees or higher) and high humidity (80 percent relative humidity) are expected.

Heat Index: A number in degrees Fahrenheit that tells how hot it really feels with the heat and humidity. Exposure to full sunshine can increase the heat index by 15
for individual location

Heat Illness: A perso
allowing internal heat
be heat illness, which
exhaustion, or heatstr

Heat Illnes

Heat Cramps: Brough
and moisture.
* Muscle pains or

Treatment:
* Stop all activity
* Drink clear juice
* Do not return to
cramps subside
* Seek medical att

Heat Exhaustion: A
days of exposure to h
fluids. The skin may b
weak, and breathing

The warning signs of
* Heavy Sweating
* Muscle cramps
* Weakness
* Headache
* Fainting

Treatment:
* Drink cool, none
* Rest
* Take a cool show
* Seek an air-cond
* Wear lightweigh

Guidelines for Fluid Replaceme for Athletes

The effects of dehydration include decreased athletic performance and in increased risk of heat illness. Athletes should not lose more than 3% of b weight as a result of one training session. Athletes should be educated in process of hydrating themselves as a 24 hour a day practice, and should every athletic activity well hydrated.

Signs and Symptoms of Dehydration:
- ☐ Thirst
- ☐ Irritability
- ☐ Headache
- ☐ Weakness
- ☐ Dizziness
- ☐ Cramps
- ☐ Nausea
- ☐ Decreased performance

What to drink during exercise include:
- ☐ WATER
- ☐ Carbohydrate drinks with 6-8% carbs (Gatorade) if greater than 45 min (if carb concentration is greater th absorption rate will be decreased
- ☐ Cool beverages at 50-59°F recommended, if bevera cold the absorption rate will be decreased

What not to drink includes:
- ☐ Fruit juice, carbohydrate gels, sodas, carbonated spo
- ☐ >8% Carbohydrate level drinks
- ☐ Drinks with caffeine, alcohol, or carbonation

Hydration tips:
- ☐ By the time you are thirsty, you are already dehydra
- ☐ Drink before, during and after games
- ☐ Avoid soft drinks and juice during play, high carbs m stomach problems
- ☐ Urine should be light yellow or clear and odorless

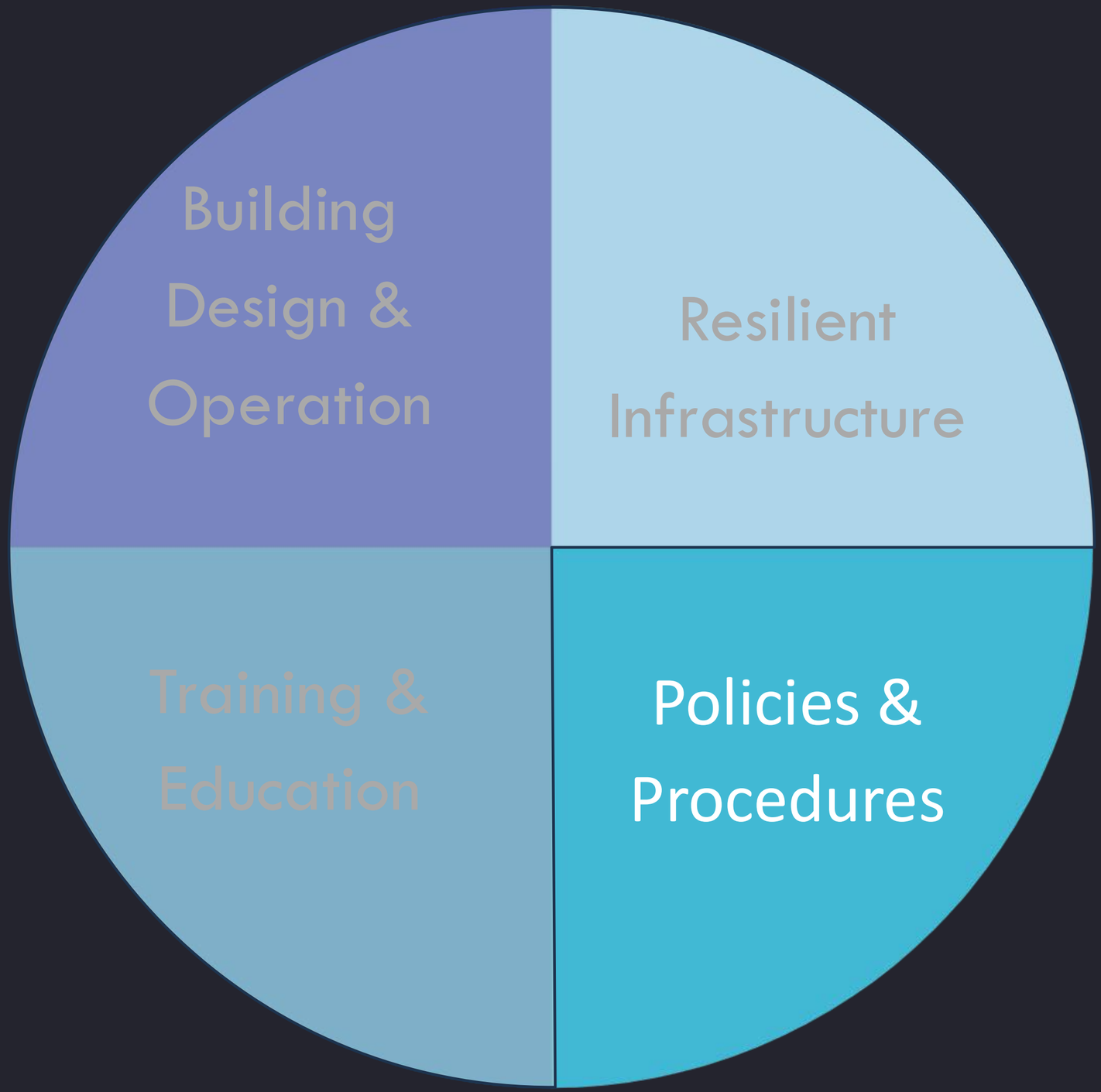
Fluid guidelines:
- ☐ 2-3 hours before exercise drink 17-20 oz of water/sp
- ☐ 10-20 min before exercise drink 7-10 oz of water/sp
- ☐ Continue drinking water or sports drinks throughout (generally 7-10 oz every 10-20 min)
- ☐ Within 2 hours after exercise drink enough fluid to r lost fluids during exercise

Prevention of Heat Illnesses

The best management of heat related illness is PREVENTION.
- ☐ Ensure the athlete is well hydrated prior to the start of any and all activity.
- ☐ Allow frequent periods of rest and hydration during activity.
- ☐ Allow unrestricted fluid replacement; encourage fluids before, during and after activity.
- ☐ Weigh athletes before and after activity to monitor body water loss from the activity and to insure adequate rehydration has occurred prior to next session.
- ☐ Gradually increase activity in the heat over a period of 7-10 days to allow adequate acclimatization.
- ☐ Wear light-weight and light-colored clothing.
- ☐ Protect against sun exposure, i.e., use sun screen.
- ☐ Schedule activities at the coolest time of day.
- ☐ Routinely perform mandatory temperature and humidity treadings on playing surfaces (indoor/outdoor).
- ☐ Routinely monitor changing weather conditions with close attention to temperature and humidity on playing surfaces (indoor/outdoor).
- ☐ Strongly consider postponing or canceling for extreme heat and humidity conditions.

https://www.sausd.us/site/handlers/filedownload.ashx?moduleinstanceid=29221&dataid=40723&FileName=Hot%20Weather%20Guidelines%20for%20Schools.pdf
https://www.sausd.us/Page/24253
https://www.sausd.us/site/handlers/filedownload.ashx?moduleinstanceid=29221&dataid=40721&FileName=Hot%20Weather%20Guidelines%20for%20Athletic%20Practice.pdf
https://innovation.luskin.ucla.edu/wp-content/uploads/2023/05/Protecting-Californians-with-Heat-Resilient-Schools.pdf

Provide training for all school staff, resources for families


Building Design & Operation
Resilient Infrastructure
Training & Education
Policies & Procedures

San Diego Unified
SCHOOL DISTRICT

ADMINISTRATIVE PROCEDURE

NO: 4032
PAGE: 1 OF 5
EFFECTIVE: 2-12-98
REVISED: 9-15-15

CATEGORY: Instruction, School Day
SUBJECT: Operation of Schools During Extremely Hot Weather

A. PURPOSE AND SCOPE

1. To outline administrative procedures governing operation of schools during periods of extremely hot weather. Plans may include necessary relocation of classes or students, curtailment or limitation of physical activities, and other appropriate modifications.

2. **Related Procedure:**
School or Site Closure/Early Dismissal of Students 5003

h. Athletes engaging in competitive sports activities must be closely observed. Other

p. Contact Extended Learning Opportunities, Physical Education/Health/Athletics, and the Summer School Office regarding before and after school programs, interscholastic athletic contests and practice, and summer school and intersession programs.

q. If emergencies occur or additional assistance is needed, contact the appropriate Area Superintendent.

3. **Weather conditions for modifying activities or school day.**

a. Authorities in the fields of medicine, environmental and occupational hazards, and safety have thoroughly studied heat stress and have issued guidelines pertaining to modifying physical activity and school or work schedules. It is recommended that temperature and humidity forecast be obtained form the National Weather Service (NWS) San Diego at 858-675-8700 or http://forecast.weather.gov/MapClick.php?CityName=San+Diego&state=CA&site=SGX&textField1=32.7153&textField2=-117.156&e=1. Local news reports on radio, television and online also carry this information.

b. Guidelines for consideration in modifying instructional programs, physical activity and school schedules include:

Category*	Temp (F°)	Possible Heat Stress Effects	Humidity < 50%	Humidity > 50%
Normal	82° or less	Good learning conditions; No effect.	Regular school day.	Regular school day.
Alert	83° - 92°	Learning may decrease with long exposure; Fatigue may increase after 4-6 hours.	Regular school day. If near 50% humidity, limit intensity of or modify physical activity and monitor.	Regular school day. Limit duration and intensity of or modify physical activity and closely monitor.
Caution	93° - 95°**	Early heat stress and cramps possible; heat exhaustion or heat stroke possible with long exposure.	Regular school day. Limit duration and intensity of or modify physical activity and closely monitor.	Regular school day. Limit duration and intensity of and modify physical activity and closely monitor.
Extreme Caution	96° or above**	Heat stroke or heat exhaustion possible.	Consider schedule change. Prohibit or limit duration and intensity of, modify physical activity, and closely monitor.	Consider schedule change. Prohibit physical activity.
*Air pollution alerts apply to all categories.				
**If air circulation (or wind velocity) is 10 mph or greater, the effects of temperatures may be less severe.				

WESTSIDE UNION SCHOOL DISTRICT

PREVENTING HEAT STRESS EMERGENCIES

Recommendations and Guidelines for Preventing Heat Stress: Employees and Students

Rationale: With year-round school and extreme heat of summer, especially in August and September, the students and staff are at higher risk for heat stress. Heat illnesses are preventable when necessary precautions are followed during hot weather.

Introduction: Heat illnesses (muscle cramps, heat exhaustion, heatstroke) are caused by *prolonged* exposure to hot temperatures, limited fluid intake or failure of the temperature regulation mechanisms in the brain. Without intervention and resolution of the problem, muscle cramps can lead to heat exhaustion, which can lead to heatstroke. Children, elderly, and obese people are at higher risk of developing heat illness.

Contributing causes:

Cardiovascular disease	Exercise: prolonged or excessive	High temperature or humidity
Dehydration	Lack of acclimatization	Drugs: alcohol, amphetamines
Excessive clothing	Chronic illnesses	Sweat gland dysfunction

Symptoms:

HEAT STRESS (Early symptoms):
- Fatigue, weakness
- Dizziness, lightheadedness
- Muscle cramps (caused by loss of salt from heavy sweating)
- Nausea
- Sweating: profuse
- Thirst
- Nosebleeds
- Headache

First aid:
Stop activity
Get in a cool place (shade, indoors)
Give cool water to drink
Remove excess clothing
Immerse in cool water or sponge down
Check victim's temperature
Notify parent/guardian as needed

HEAT EXHAUSTION (Later symptoms):
- Cool, moist, clammy, pale skin
- Extreme weakness
- Nausea and vomiting
- Pulse: rapid, weak
- Dilated pupils
- Irrational behavior
- Loss of consciousness, if not treated

First aid:
If school nurse not available, **call 911**
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HEAT STROKE (Medical EMERGENCY):
- Dry, hot, red skin
- Fever (body temperature above 102 degrees F)
- Extreme confusion
- Rapid, shallow breathing
- Rapid, weak pulse
- Small (constricted) pupils
- Dark urine
- Seizures
- Unconsciousness
- Shock, brain damage, and death can occur

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General First Aid for Heat-Related Illnesses:
- Move the victim to a cool place.
- Have victim lie down in a cool place: elevate feet about 12 inches.
- Loosen or remove excess clothing.
- Apply cool, wet cloths to the victim's skin, neck, groin, and armpits.
  Do NOT apply rubbing alcohol.
  Do NOT give the victim medications that are used to treat fever (such as aspirin).
- Give the victim fluids (water, Gatorade) to drink.
  Do NOT give victim liquids that contain caffeine.
  Do NOT give the victim salt tablets.
- Observe for symptoms of shock (bluish lips and fingernails, decreased alertness). Administer first aid for shock.
- If victim has seizures, protect him/her from injury and give first aid.
- Notify parent/guardian, school nurse, and administrator.
- **CALL 911 (Paramedics): symptoms of heatstroke, unconsciousness, shock, seizures.**

Weather Conditions requiring Modification of Physical Activities or School Schedule are:
1. Excessive Heat: if wind velocity is ≥ 10 mph the effect may be less severe.
   Temperature 92-95 degrees F: limit duration & intensity of physical activity.
   Temperature ≥ 95 degrees F: prohibit or limit duration & intensity of P.E.; consider schedule change.
2. High Humidity: ≥ 50%
3. Air Pollution: SCAQM report is checked daily by Health Services Coordinator

Sources of Information:
1. Southern California Air Quality Management District (SCAQMD): internet access
2. Local radio and television news reports
3. Enclosed guidelines
4. Health Services Coordinator

Preventing Heat Stress (during Outdoor Activities):
- Students should wear loose-fitting, lightweight, and light-colored clothing in hot weather.
- Students should rest frequently when exercising in hot weather.
  New students to the high desert may need a longer time to acclimate to the weather.
  Limit duration and intensity of exercise.
- Prevent dehydration: encourage students to drink adequate fluids (water).
  Do not wait until thirsty: drink water often.
  Personal water containers: students should be allowed to carry their own.
  In order to prevent the spread of disease, personal water containers should not be shared.
  Students must obey safety rules when carrying personal water containers: no running with straws or containers in mouth, no using water container inappropriately.
- Inclement weather schedule may be implemented at discretion of Administrator.
  Use indoor facility (gymnasium, classroom, cafeteria – if available) for physical activities
  Use hot days as P.E. instructional days
  If exercising outdoors: limit intensity/duration of outdoor activity: i.e. walking instead of running.
- Sunscreen and hats/caps should be worn to prevent sunburn.
- Teachers and playground instructional aides must observe students during outdoor physical activity: know signs and symptoms of heat stress and emergency first aid. Students with known health problems should be closely monitored: modify/restrict activities as appropriate. Refer and consult with the School Nurse.

Employee Training:
School procedures for preventing and treating heat stress: reviewed by school nurse annually (during BBP inservice).
Written information posted and given to all personnel: signs, symptoms, and first aid for heat stress.
All personnel must be aware of contributing factors to heat stress:
- air temperature
- humidity
- air circulation
- air pollution
- medical problems
- fluid intake
- appropriate clothing
- physical conditioning
- acclimation to heat
- exercise: intensity and duration

Westside Union School District
Pointing the way, providing the path

https://cdnsm5-ss18.sharpschool.com/UserFiles/Servers/Server_27732394/File/A%20to%20Z%20Index/Hot%20Weather%20Operations/pp4032.pdf
/https://www.westside.k12.ca.us/uploaded/District/deptartments/health/Heat_Stress_Guidelines_8-15.pdf

Updated Jun 23, 2024 - Energy & Climate

The heat day is the new snow day

April Rubin

NEWS // EDUCATION

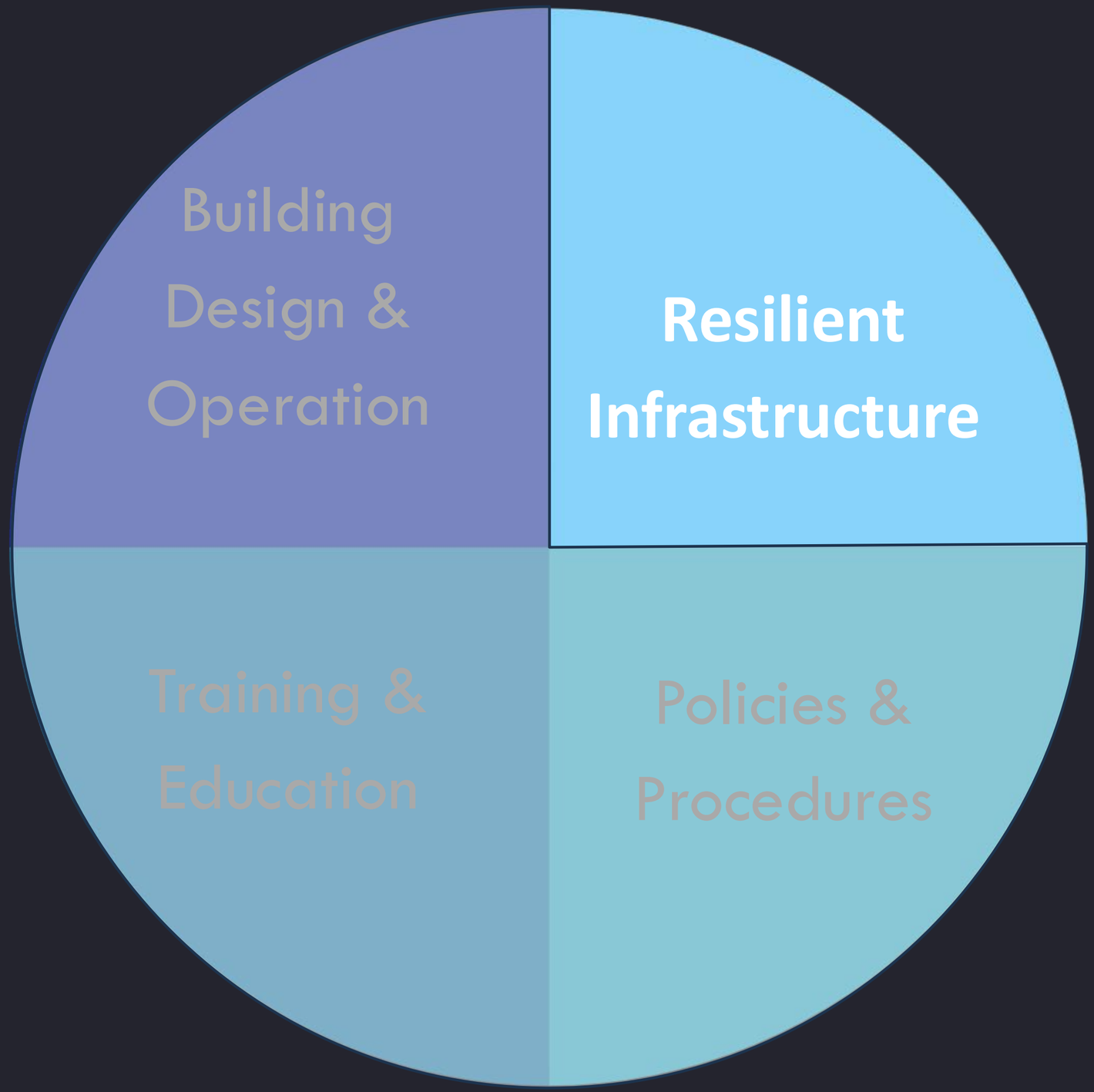
Some Capital Region schools dismissing early this week because of heat wave

By **Kathleen Moore**, *Staff Writer*
June 17, 2024

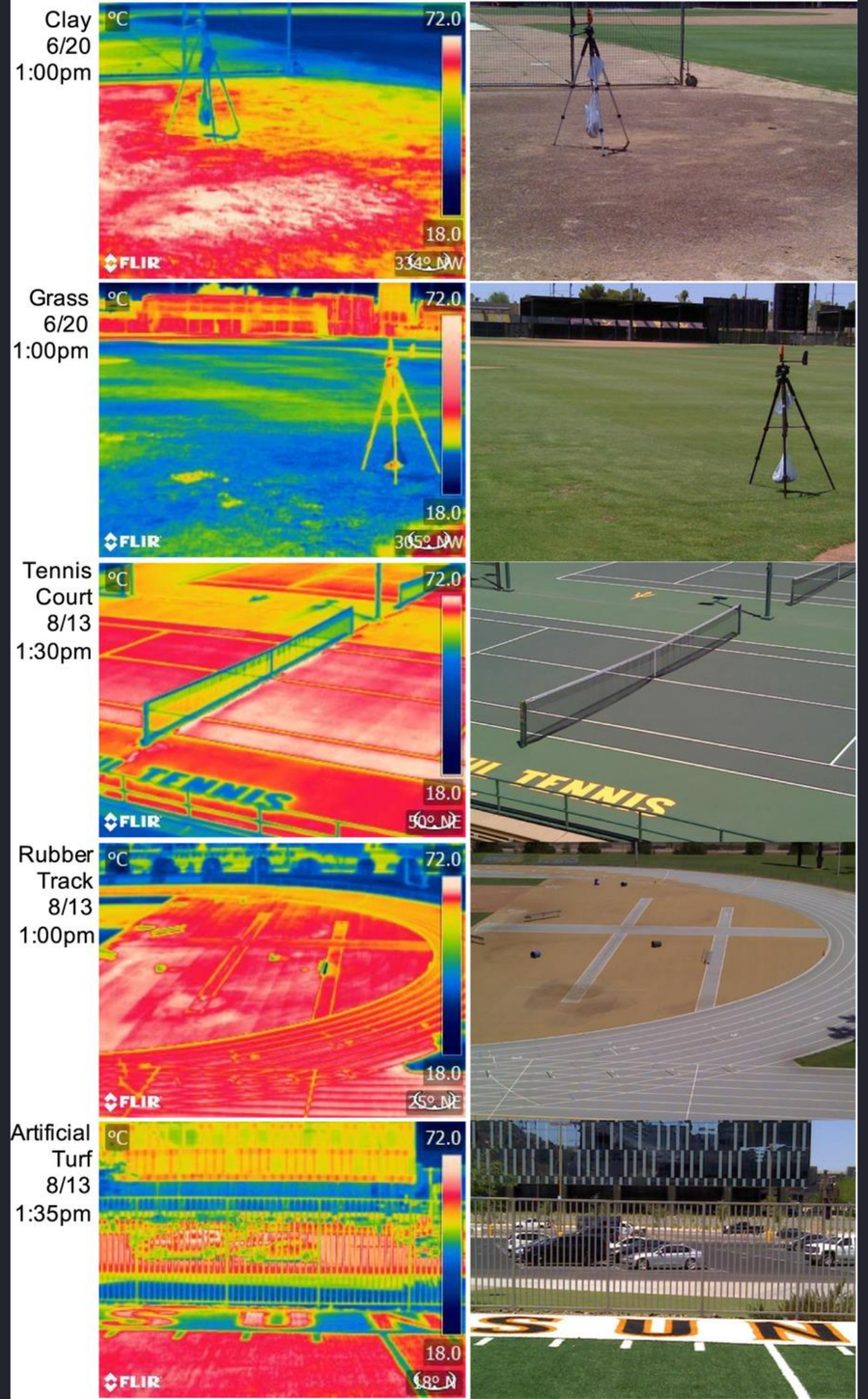
NEWS

Heat sends several Cleveland schools to remote learning

BY MADISON MACARTHUR | CLEVELAND
PUBLISHED 7:31 AM ET AUG. 29, 2022


Building Design & Operation
Resilient Infrastructure
Training & Education
Policies & Procedures

Artificial turf is routinely found to be significantly hotter than other surfaces.



Guyer et al., 2021, Environ. Res. Lett. DOI 10.1088/1748-9326/ac32fb; https://www.peoriaaz.gov/government/departments/water-services/sustainability-water-conservation/conservation/artificial-turf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