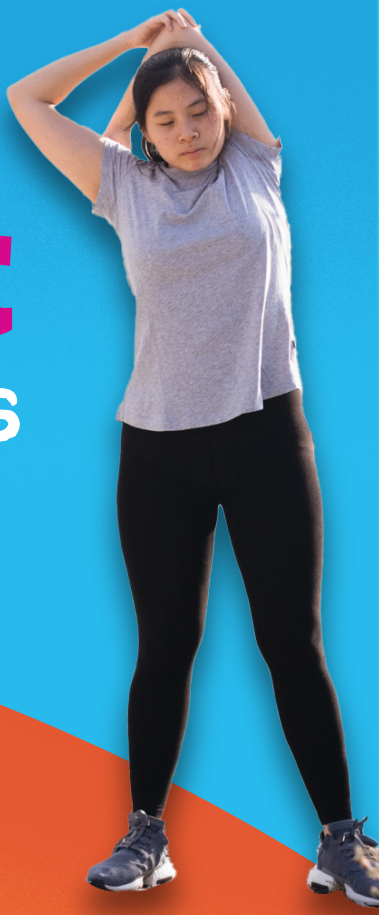
# Toolkit to Address Extreme Heat on School Campuses



County of Los Angeles Public Health

# A Message from Dr. Muntu Davis

**"There is hot, and then there is hot! Extreme heat is a period of high heat and humidity with temperatures above 90 degrees for at least two to three days. In extreme heat your body works extra hard to maintain a normal temperature, which can lead to death. Extreme heat is responsible for the highest number of annual deaths among all weather-related hazards." – Ready.gov**

Across Los Angeles County, we're seeing more frequent hot days and heat waves. Extreme heat is starting earlier in the year and lasting longer into the fall. Rising temperatures put everyone at risk for heat-related illnesses, including severe illness and death, but children and students are particularly at higher risk.

Schools, especially, can become dangerously hot due to surfaces and structures that absorb and retain heat and a lack of shaded areas. On days when the air temperature exceeds 90 degrees, asphalt and rubber surfaces in outdoor play areas can reach over 130 degrees, while play equipment can exceed 120 degrees.

When it's hot outside and classrooms lack air conditioning, students may struggle to focus and complete their schoolwork. Research indicates that higher temperatures can reduce learning and lower test scores. Additionally, heat can disrupt sleep and increase behavioral issues such as anxiety, depression, and aggression. Younger students, in particular, may have difficulty recognizing and managing their body's heat and hydration levels, making them more dependent on adults for help in preventing heat-related illnesses.

This toolkit is designed for principals, coaches, teachers, school administrators, staff, students, and their families. It offers information, recommendations, and resources to help school communities assess the impact of extreme heat and implement measures to prevent heat-related illnesses.

Schools should tailor these resources to fit their specific needs. Raising awareness and taking preventive measures are crucial for keeping students focused, active, and engaged in their education and extracurricular activities.

The Los Angeles County Department of Public Health is committed to collaborating with schools to raise awareness about extreme heat and ensure that schools remain safe and students stay healthy, active, and focused on learning.

Sincerely,

**Muntu Davis, MD, MPH**
Los Angeles County Health Officer
Los Angeles County Department of Public Health

## DESIRED RESULTS OF THE TOOLKIT AND WHAT WORKS

The focus of this toolkit is to provide resources and guidance to protect students from heat on school campuses. It attempts to consider all the potential impacts of extreme heat and hot weather days on students, families, and school staff on campus and provide activities to prevent heat-related illness (heat cramps, heat exhaustion, and heat stroke) and deaths.

### Desired Results

- All students and staff at school are safe from heat-related illness and death.
- Student learning and engagement continues, without disruption, on hot days at school.

### What Works

- Teach and reinforce awareness of the risks from heat exposure and heat-related illness.
- Promote and use best practices for effective communication related to hot weather.
- Provide and implement health guidance and resources for managing activities on hot days, based on your location's "HeatRisk" forecast level.
- Support the capacity of schools to prevent heat-related illness and other negative impacts during hot weather.

### How To Use This Toolkit

This toolkit consists of Content Areas of focus that are critical to protecting students and staff from hot weather at school. Each Content Area includes References, Highlighted Recommendations and Resources.

### Resources are categorized as:

1. Education
2. Guidance
3. Weather Forecast Tools
4. Reports/Data

The focus of most guidance and resources is on students, but additional information may be included in some for school personnel, teachers and coaches, parents, guardians and families. The content areas provide awareness about heat-related illness risk reduction and prevention including how heat impacts health and learning, the importance of staying hydrated, preventing heat-related illness during physical education and athletics and preparing for the heat season. It is important that schools assess their environment and adapt resources to their unique school community, campus and needs.

**There are nine Content Areas. Users can start at the beginning or jump to the specific content area(s) they need.**

## TOOLKIT CONTENT AREAS


A. About Extreme Heat


B. How Extreme Heat Impacts Health


C. Air Quality


D. Impacts of Extreme Heat on Learning, Well Being, Mental and Emotional Health


E. Hydration and Diet


F. Clothing and Sun Protection, Cooling and Shade


G. Physical Education and Extra Curricular Activities


H. Athletics


I. Preparing for the Heat Season

# TABLE OF CONTENTS

# Toolkit Summary

**Highlighted Recommendations to protect students, school staff and families from extreme heat.**

Please refer to these recommendations to implement protection from extreme heat on school campuses.

## A). EXTREME HEAT

### Highlighted Recommendations

**1. Know the weather and air quality forecast for your area:**

- Sign up to receive weather advisories. Subscribe to Los Angeles County Department of Public Health - Weather Advisories to receive Heat Advisory, Excessive Heat Warning, and Cold Weather Alerts notifications. These are based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. See resources below for more information.
- Know the weather and HeatRisk forecast for your location. Regularly assess weather in your area including temperature using the National Weather Service (NWS) HeatRisk forecast tools and corresponding HeatRisk levels. The forecast can provide advance warning and inform heat safety planning and preparedness before extreme heat occurs.
- Be aware that multiple days of high temperatures will make staff, students including athletes more at risk for heat-related illness. Students, especially younger students will require more intervention and support from staff.
- Know the air quality forecast for your location. Utilize Air Now and South Coast Air Quality Management forecast tools to assess air quality and potential impacts on physical activity or other events.

**2. Develop a plan for your campus to protect people during the heat:**

- Know the "HeatRisk" level and recommended actions for your location. This will help assess the need to reschedule, cancel activities, or move to alternative or cooled indoor spaces. If a circumstance is unclear or uncertain, cancel. High air temperature, humidity, direct sunlight, and other factors increase risk of heat-related illness.
- Assess your campus and plan for alternatives. Confirm functioning of campus HVAC systems, availability of alternative "cool" spaces, and hydration stations.
- Review Extreme Heat Guidance resources. Refer to resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat.
- Know how fans impact heat. Avoid use of fans alone in extreme heat (high 90s and up), as fans alone without air conditioningdon't cool the air and may cause the body to gain instead of lose heat.

**3. Notify your school community about the HeatRisk level and what actions to take at school:**

- Develop your messages based on the HeatRisk level for your location. Refer to the CDPH Heat Risk Grid to develop your communication- such as warnings and actions to be taken to prevent heat-related illness, including changes to physical education, sports or extracurricular activities and risks to those at higher risk for heat-related illness.
- Let others know what to do based on the HeatRisk level for your location. If extreme heat is forecasted or experienced, provide messages for school staff and students related to the potential impact of heat, such as on health, mental health, and learning, and actions to be taken, such as increasing hydration, reducing time or activities outdoors in the sun, staying cool, among others, based on your HeatRisk level.

- Maintain communication with your school community. Use ongoing messaging and education to create a shared understanding on campus that heat is increasing, lasting longer, and potentially very dangerous to health and wellbeing. Severe heat-related illness is most often preventable. Include information on locating cooling centers.

## B. HOW EXTREME HEAT IMPACTS HEALTH

### Highlighted Recommendations

- Follow all highlighted recommendations in toolkit section A - About Extreme Heat including subscribing to Los Angeles County Department of Public Health Weather Advisories.
- Provide information and messaging (see resources in all sections) to staff and students on campus to ensure their awareness of the signs and symptoms of heat-related illness including heat stroke, and how to respond.
- Provide heat-related health education or guidance information to your school community, including for families, in multiple languages to ensure language accessibility. Include information on locating cooling centers.
- Share ongoing communications as needed to raise awareness of the real threats of heat.
- Promote regular breaks during outdoor activities, use of shade, hydration, appropriate clothing, hats and sunscreen among staff and students.
- Encourage staff and students where appropriate, to watch for signs and symptoms of heat-related illness in themselves and others.
- Closely monitor the health and well-being of students who may not exert control over their physical environments. This includes students who may be less aware of and not able to recognize symptoms of heat-related illness including dehydration.
- When it's going to be hot or the HeatRisk forecast level is elevated, assess the conditions of your campus and the planned activities each day. Provide guidance or direction on whether to move locations, modify, reschedule, postpone or cancel physical activities, athletics, and extracurricular activities to reduce the risk of health-related illnesses.
- Identify alternative cool spaces if air conditioning is not available, including the gym, cafeteria or library.
- Create a heat plan with trigger points including for decreased activity, increased attention and messaging on hydration and monitoring symptoms of heat-related illness, and communication to staff, teachers, coaches and families.
- Train school nurses to respond and treat heat-related illness.
- Train student heat ambassadors to share heat-related illness related information and messaging.
- Install or improve cooling equipment whenever possible.
- Avoid use of fans alone in extreme heat (high 90s and up), as fans alone without air conditioning don't cool the air and may cause the body to gain instead of lose heat.
- Maintain good working condition of hydration stations and improve shading where possible.

## C. AIR QUALITY

### Highlighted Recommendations

- Follow all highlighted recommendations in toolkit section A - About Extreme Heat and section B - How Extreme Heat Impacts Health including subscribing to Los Angeles County Department of Public Health Weather Advisories.
- Use air quality forecast tools such as the U.S. Environmental Protection Agency's Air Quality Index, AirNow, and South Coast Air Quality Management air quality alerts, in combination with National Weather Service forecast tools to assess air quality.
- Refer to air quality guidance from the California Department of Education and California Department of Public Health to help inform decisions related to student physical and outdoor activity, and other events.
- Consider implementing an on campus Flag Program – a system of colored flags that corresponds to levels of air quality, or other notifications to staff and students. On unhealthy days, your campus can adjust physical activities to help reduce exposure to air pollution.
- Provide education and messaging to staff and students about the risks of poor air quality and wildfire smoke including those at risk for increased impact on health such as people with lung diseases, those exercising or working outside.
- On days where physical activity must be decreased, allow for creative and alternative movement, including stretching, putting on a play, or dancing.

## D. IMPACTS OF HEAT ON LEARNING, WELLBEING, MENTAL AND EMOTIONAL HEALTH

### Highlighted Recommendations

- Follow all highlighted recommendations in toolkit section A - About Extreme Heat and section B – How Extreme Heat Impacts Health, including subscribing to Los Angeles County Department of Public Health Weather Advisories.
- If extreme heat or elevated HeatRisk is forecasted or current, provide information and messaging for school staff and students related to the impact of heat such as need for hydration, impact of heat on physical health, mental health, and learning.
- Prepare indoor activities in advance in the event that physical activity is reduced and heat is challenging the ability of students to focus on school-work.
- Have grade-appropriate activities planned in response to students experience and feelings due to extreme heat, including emotional distress (eco-anxiety).
- Observe how the heat is impacting the ability of students to focus, learn and interact appropriately.
- Provide information for students and families on keeping family homes-units cool that don't have air conditioning to promote health, wellbeing, and better sleep. Include information on locating cooling centers.
- Be aware of students taking medications – including for mental or behavioral health, that impair their ability to stay cool during extreme heat and may make their conditions worse.

## E. HYDRATION AND DIET

### Highlighted Recommendations

- Educate students about the benefits of drinking water - including preventing heat-related illness, improved focus, and overall health.
- Provide regular hydration breaks and ensure easy access to drinking water for staff, teachers and students.
- During periods of extreme heat or elevated HeatRisk provide regular reminders to students to hydrate - specifically younger students who have less capacity to self-assess for thirst.
- Provide reminders for additional hydration after physical activity or direct sun exposure- including posters, text messages and other messaging.
- Maintain campus-wide hydration stations and create guidance for water bottle usage on campus.
- Implement water access and age-appropriate hydration education including guidance on which fluids are best to support hydration, how to assess hydration levels and prevent dehydration.
- Provide families with information on the benefits of hydration and beverages to avoid.
- Provide messaging to students and families on foods that support hydration and those to avoid.
- Be aware that multiple days of extreme high temperatures or elevated HeatRisk will make staff and students more at risk for heat-related illness. Students, especially younger students will require more actions taken by and support from staff to avoid the risk of heat-related illness.
- Review Extreme Heat Guidance resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat .
- Use ongoing messaging and education to create a shared understanding on campus that heat is increasing, lasting longer, and potentially very dangerous to health and wellbeing. Severe heat-related illness is most often preventable.

## F. CLOTHING AND SUN PROTECTION, COOLING AND SHADE

### Highlighted Recommendations

- Follow highlighted recommendations in toolkit section A-I, including subscribing to the Los Angeles County Department of Public Health Weather Advisories.
- Regularly assess UV levels regardless of temperature.
- Provide sun safety education and messaging on the risks of heat-related illness and skin damage from UV radiation and direct sun exposure.
- Consider implementing Centers for Disease Control and Prevention (CDC) guidelines to create sun-safe places that reduce exposure to UV radiation.
- Encourage students to wear protective clothing, hats, sunglasses, and sunscreen, with a minimum of SPF 15.
- Provide education and messaging to staff, students and families on appropriate clothing and sunscreen during periods of heat.
- Identify areas outside where shading protects students during physical activity.

- Promote regular breaks during outdoor activities, use of shade, hydration, appropriate clothing, hats and sunscreen among staff and students.
- Closely monitor the health and wellbeing of students, especially younger students, who may not exert control over their physical environments, who may be less aware of and not able to recognize symptoms of heat-related illness, including dehydration.
- During periods of heat, make determinations and provide guidance on changing locations, rescheduling, deferment or canceling physical activity, athletics, and extracurricular activities.
- Prepare indoor activities in advance in the event that physical activity is reduced and heat is challenging the ability of students to focus on schoolwork.
- Identify alternative cool spaces if air conditioning is not available, including the gym, cafeteria or library.
- Review Extreme Heat Guidance resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat .
- Review School Cooling Funding Opportunities to help campuses to modernize and become resilient against extreme heat.

## G. PHYSICAL EDUCATION AND EXTRA CURRICULAR ACTIVITIES

### Highlighted Recommendations

- Subscribe to the Los Angeles County Department of Public Health - Weather Advisories to receive Heat Advisory, Excessive Heat Warning, and Cold Weather Alerts notifications. Notifications are based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. See resources below for more information.
- Regularly assess weather in your area using the National Weather Service (NWS) HeatRisk forecast tool and corresponding HeatRisk levels. The forecast can provide advance warning and inform heat safety planning and preparedness before extreme heat occurs.
- Know your location's HeatRisk level to help assess need the to reschedule, cancel activities, or move to alternative or cooled indoor spaces. If a circumstance is unclear or uncertain, cancel. High air temperature, humidity, direct sunlight, and other factors increase the risk of heat-related illness. Cancel all outdoor and un-conditioned indoor activities when the HeatRisk level is Red or Magenta during the heat of the day.
- Refer to the CDPH Heat Grid to inform any necessary communication- such as warnings and steps to prevent heat-related illness including changes to physical education, sports or extracurricular activities and risks to those at higher risk for heat-related illness.
- Proceed with extra caution when extreme heat occurs suddenly, lasts for an extended period of time, and/or reaches new high temperatures. Generally, in these scenarios, very few outdoor activity participants (or those participating in indoor spaces without cooling) are "acclimatized", meaning have adjusted as is possible, to extreme heat. Exertional heat stroke can occur within the first 60 minutes of exertion and may be triggered without exposure to high ambient temperatures.
- Identify areas outside where shading protects students during physical activity.
- Promote regular breaks during outdoor activities, use of shade, hydration, appropriate clothing, hats and sunscreen among staff and students.

- Closely monitor the health and wellbeing of students, especially younger students, who may not exert control over their physical environments, who may be less aware of and not able to assess or recognize symptoms of heat-related illness, including dehydration.
- During periods of heat, make determinations and provide guidance on changing locations, rescheduling, deferment or canceling physical activity, athletics, and extracurricular activities.
- On days where outdoor play or physical activity must be decreased, allow for creative and alternative movement, including stretching, putting on a play, or dancing.
- Prepare indoor activities in advance in the event that physical activity is reduced and heat is challenging ability of students to focus on schoolwork.
- Assess uniforms, costumes and other equipment required for recess, physical education or an extracurricular activity such as band or theater for their appropriate comfort and safety during periods of extreme heat.
- Review Extreme Heat Guidance resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat.

## H. ATHLETICS

### Highlighted Recommendations

- Subscribe to Los Angeles County Department of Public Health - Weather Advisories to receive Heat Advisory, Excessive Heat Warning, and Cold Weather Alerts notifications. Notifications are based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. See Resources below for more information.
- Review Extreme Heat Guidance resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat
- Regularly assess the weather in your area using the National Weather Service (NWS) HeatRisk forecast tool and corresponding HeatRisk levels. The forecast can provide advance warning and inform heat safety planning and preparedness before extreme heat occurs.
- Consider using WetBulb Globe Temperature (WBGT) to assess safe levels of athletic activity which measures not only temperature and humidity (the "heat index") but also wind speed, sun angle, and cloud cover. High air temperature, humidity, direct sunlight, and other factors increase risk of heat-related illness.
- Know your location's HeatRisk level to help assess need the to reschedule, cancel athletic activities, or move to alternative or cooled indoor spaces. If a circumstance is unclear or uncertain, it may be safer to cancel.
- Additionally, refer to the CDPH Heat Grid to inform any necessary communication- such as warnings and steps to prevent heat-related illness including changes to physical education, sports or extracurricular activities and risks to those at higher risk for heat-related illness.
- Identify areas outside where shading protects students during physical activity.
- Promote regular breaks during outdoor activities, hydration, appropriate clothing, hats and sunscreen among staff and students.

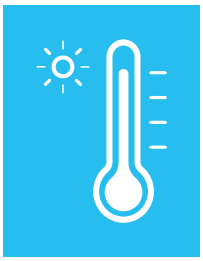
- Closely monitor athletes for signs and symptoms of heat-related illness, and adequate hydration. Remember that younger students, who may not exert control over their physical environments, may be less aware of and not able to assess or recognize symptoms of heat-related illness or dehydration.
- During periods of heat or elevated HeatRisk, make determinations and provide guidance on changing locations, rescheduling, deferment or canceling physical activity, athletics, and extracurricular activities.
- Make sure water is available during outdoor activities. Encourage regular breaks and hydration. Evaluate conditions regularly and make appropriate adjustments – for example, postpone or reschedule practices whenever possible to be held early in the morning or late in the evening to avoid times when heat is more severe.
- Promote compliance with all CIF heat training requirements and Parent/Student CIF Heat-related illness Information Sheet when there is a student heat-illness event.
- Train coaches and school nurses to recognize, respond to and treat heat-related illness.
- Refer to CIF (beat the heat) resources.

## I. PREPARING FOR THE HEAT SEASON

### Highlighted Recommendations

- Provide information and education to students, teachers, and staff on heat-related risks including the signs and symptoms of heat-related illness and preventative actions.
- Identify and assign responsibilities for monitoring weather and air quality warnings that are issued by local and state authorities.
- Identify temperature thresholds specifying when physical activity, sports, and other outdoor activities should be modified, postponed, or cancelled.
- Assess cooling equipment including fans and air conditioners to make sure they are in working order.
- Assess the locations where students and staff spend time to identify spaces most appropriate for activities that need to be modified during periods of extreme heat.
- Establish effective communication strategies to reach teachers, staff and students leading up to and during extreme heat events.
- Include heat preparation and response as a topic in school assemblies, staff meetings, and in communications to families in the weeks leading up to high heat season and during high heat events.
- Encourage students to take preventative behaviors, such as drinking water to stay hydrated.

## A). ABOUT EXTREME HEAT



Throughout Los Angeles County extreme temperatures have become more frequent occurrences, more severe and longer lasting. Increasing numbers of very hot days and heat waves are also extending later in the summer, and scientists predict more occurrences of increasingly hot weather days in the future. (1) The federal government defines extreme heat as a period of high heat and humidity with temperatures above 90 degrees for at least two to three days. (2)

Los Angeles County is large and diverse, and temperatures and climate vary widely, and because some places are hotter than others, extreme heat can depend on what's considered average for a particular location at that time of year. (3,4) Hotter, longer heat waves are threatening the health and wellbeing of County residents including students at schools who may be more at risk of heat-related illness and deaths during extreme heat or hot weather.

When at school, students spend time on playgrounds, sports fields, and courts during some of the hottest times of the day. In many schools, play areas with little or no shade have large areas of dark concrete or asphalt "blacktops" that readily soak up and release heat during the day. Similarly, sporting activities often take place on rubber matting or artificial turf, which gets hotter than "blacktops" and real grass. As a result, schools can be some of the hottest locations in the County. (5)

When in hot weather, the body must work hard to maintain a normal temperature. If the body fails to cool itself, it can lead to heat-related illness (such as heat cramps, heat exhaustion, and heat stroke) and even death. Extreme heat is responsible for the highest number of annual deaths among all weather-related hazards. (6) Certain population groups are at greater risk of heat-related illness, including people who are unhoused or don't have a permanent dwelling or place to shelter; those working, exercising, or doing strenuous activities outdoors or in non-cooled indoor spaces; older adults, infants and children, those on certain medications and/or with chronic health conditions that make them more sensitive to heat or poor air quality (your doctor or pharmacist can let you know if this is you); people with disabilities, pregnant people, those living in low income communities; and, even those who are otherwise healthy who are attending outdoor activities without a reliable source of cooling and/or fluids to stay hydrated. However, heat-related illnesses and deaths are preventable. (7,8) It's increasingly important to plan for the danger of heat and its risks and to communicate the very real threat it poses, and how to stay safe when the weather is hot. (9)

To ensure that communities have the right information at the right time to be better prepared for upcoming heat events, the National Weather Service (NWS) has a useful *HeatRisk* forecast tool for planning for upcoming heat and its associated potential risk. The tool uses a color-numeric-based index that provides a daily forecast of the potential level of risk for heat-related impacts over a 24-hour period and over the next 7 days. *HeatRisk* takes into consideration:

- How unusual the heat is for the time of the year
- The duration of the heat including both daytime and nighttime temperatures
- If those temperatures pose an elevated risk of heat-related impacts based on data from the Centers for Disease Control and Prevention (CDC).

A different color/number is used for each level of concern for and risk of heat-related impacts, along with identifying the groups potentially most at risk and recommendations for protecting them from those risks. It incorporates heat-health data from the Centers for Disease Control and Prevention (CDC). (10) The Los Angeles County Department of Public Health posts heat warnings and advisories on its website and social media. Public Health also sends a mass email to news outlets.

## GOING BEYOND AIR TEMPERATURE

### Heat Index (11)

HeatRisk complements the NWS Heat Index, which describes what the temperature feels like to the human body when relative humidity (the amount of water in the air relative to the air temperature) is added to the actual air temperature. To find the heat index, also known as the apparent temperature, look at the Heat Index Chart above or check the Heat Index Calculator. As an example, if the air temperature is 96°F and the relative humidity is 65%, the heat index--how hot it feels--is 121°F. The red area without numbers indicates extreme danger.

It surprises many people to learn that the heat index values in the chart above are for shady locations with a light wind. If you are exposed to direct sunlight, the heat index value can be increased by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous. (11)

The NWS sends alerts when the Heat Index is expected to exceed 105°-110°F (depending on local climate) for at least two consecutive days.

### Wet Bulb Globe Temperature (WBGT) (11)

Wet Bulb Globe Temperature uses temperature, humidity, wind, solar radiation, and other weather parameters. It's a particularly effective indicator of heat stress for active populations such as outdoor workers and athletes.

WBGT can be used to inform activity modifications during exercise or outdoor work. For instance, The American College of Sports Medicine bases its guidelines for the intensity of sport practices on WBGT, and it is therefore utilized by athletic programs in many school districts. Check out this handout and video to learn about WBGT. (11)

### Which students are more vulnerable to heat? (10)

Extreme heat can affect anyone, but there are a number of factors that increase a person's risk of heat-related illness including:

- Being under four years of age.
- Having a disability and/or functional needs.
- Living with certain chronic health or mental health conditions.
- Taking certain medications that impact circulation or the ability to sweat.
- Using substances such as alcohol.
- Exercising or doing strenuous activities outdoors or indoors in spaces without adequate cooling during the hottest time of day.
- Not drinking enough fluids.
- Engaging in outdoor activities in areas with more asphalt, dark ground surfaces, or artificial turf and less shade, tree canopy or green spaces (land that is partly or completely covered with trees, shrubs, grass or other natural vegetation).
- Attending schools without air conditioning, including in under-resourced communities or geographic areas where buildings historically have not needed air conditioning such as coastal communities.
- Otherwise already experiencing social and health inequities.

## References


1. Extreme Heat and Climate Change. Los Angeles County Department of Public Health. http://publichealth.lacounty.gov/eh/climatechange/ExtremeHeatNClimateChange.htm
2. Extreme Heat- Ready.gov. U.S. Department of Homeland Security. 2023. https://www.ready.gov/heat
3. About Extreme Heat. Centers for Disease Control and Prevention. 2023. https://www.cdc.gov/disasters/extreme-heat/heat_guide.html
4. Los Angeles County Climate Assessment. Los Angeles County Chief Sustainability Office. 2021 https://ceo.lacounty.gov/wp-content/uploads/2021/10/LA-County-Climate-Vulnerability-Assessment-1.pdf
5. Protecting Californians with Heat-Resilient Schools. UCLA Luskin Center for Innovation. Policy Brief – 2023. https://innovation.luskin.ucla.edu/wp-content/uploads/2023/05/Protecting-Californians-with-Heat-Resilient-Schools.pdf
6. Weather Related Fatality and Injury Statistics. National Weather Service. https://www.weather.gov/hazstat/
7. Health Guidance for Local Health Jurisdictions During Extreme Heat. California Department of Public Health. 2023. https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-LHJs.aspx
8. Extreme Heat. California Department of Public Health. 2023. https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/BI_Natural-Disasters_Extreme-Heat.aspx
9. Communicating Heat Risk: A guide to inclusive, effective, and coordinated public information campaigns. UCLA Luskin Center for Innovation. 2024. https://innovation.luskin.ucla.edu/wp-content/uploads/2024/03/Communicating-Heat-Risk.pdf
10. Extreme Heat Guidance for Schools. California Department of Public Health. 2023 https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-schools.aspx#
11. National Weather Service. Heat Forecast Tools. https://www.weather.gov/safety/heat-index


## Highlighted Recommendations

### 1. Know the weather and air quality forecast for your area:

- Sign up to receive weather advisories. Subscribe to Los Angeles County Department of Public Health - Weather Advisories to receive Heat Advisory, Excessive Heat Warning, and Cold Weather Alerts notifications. These are based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. See resources below for more information.
- Know the weather and HeatRisk forecast for your location. Regularly assess weather in your area including temperature using the National Weather Service (NWS) HeatRisk forecast tools and corresponding HeatRisk levels. The forecast can provide advance warning and inform heat safety planning and preparedness before extreme heat occurs.
- Be aware that multiple days of high temperatures will make staff, students including athletes more at risk for heat-related illness. Students, especially younger students will require more intervention and support from staff.
- Know the air quality forecast for your location. Utilize Air Now and South Coast Air Quality Management forecast tools to assess air quality and potential impacts on physical activity or other events.

### 2. Develop a plan for your campus to protect people during the heat:

- Know the "HeatRisk" level and recommended actions for your location. This will help assess the need to reschedule, cancel activities, or move to alternative or cooled indoor spaces. If a circumstance is unclear or uncertain, cancel. High air temperature, humidity, direct sunlight, and other factors increase risk of heat-related illness.

- Assess your campus and plan for alternatives. Confirm functioning of campus HVAC systems, availability of alternative "cool" spaces, and hydration stations.
- Review Extreme Heat Guidance resources. Refer to resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat .
- Know how fans impact heat. Avoid use of fans alone in extreme heat (high 90s and up), as fans alone without air conditioningdon't cool the air and may cause the body to gain instead of lose heat.

### 3. Notify your school community about the HeatRisk level and what actions to take at school:

- Develop your messages based on the HeatRisk level for your location. Refer to the CDPH Heat Risk Grid to develop your communication- such as warnings and actions to be taken to prevent heat-related illness, including changes to physical education, sports or extracurricular activities and risks to those at higher risk for heat-related illness.
- Let others know what to do based on the HeatRisk level for your location. If extreme heat is forecasted or experienced, provide messages for school staff and students related to the potential impact of heat, such as on health, mental health, and learning, and actions to be taken, such as increasing hydration, reducing time or activities outdoors in the sun, staying cool, among others, based on your HeatRisk level.

## Resources

| EDUCATION | |
|---|---|
| **Link** | **Description** |
| **Extreme Heat Information**<br>Centers for Disease Control and Prevention (CDC) | **Stay Cool. Stay Hydrated. Stay Informed.**<br>This website provides helpful tips, information, and resources to help you stay safe in the extreme heat this summer. This includes protecting disproportionately affected populations from extreme heat such as athletes, children and people with chronic conditions. |
| **Frequently Asked Questions About Extreme Heat**<br>Centers for Disease Control and Prevention (CDC) | **FAQ's About Extreme Heat**<br>Key information about what happens to the body when it overheats, symptoms of heat-related illness and populations with a higher risk of heat-related illness.<br>Available in English and Spanish. |
| **Extreme Heat Coloring Book**<br>Centers for Disease Control and Prevention (CDC) | **Ready Wrigley Prepares for Extreme Heat Coloring Book**<br>Education resources for children and families to learn about, prepare for, and protect against extreme heat. |
| **Heat Relief Outreach Materials**<br>Climate Emergency Mobilization Office | **Heat Safety & Avoid Heat Stroke Flyers and Posters**<br>Printable PDFs and graphics in multiple languages. |
| **Extreme Heat Campaign & Extreme Heat Resources**<br>Los Angeles Regional Collaborative (LARC) | **Heat Campaign**<br>Social media graphics, a content calendar with key messaging, and weekly email updates with instructions to post and share content.<br>**Heat Resources**<br>LARC Heat Tips and a list of LA County-wide heat-related resources. |

| GUIDANCE | |
|---|---|
| **Link** | **Description** |
| **Be Informed: Extreme Heat**<br>California Department of Public Health (CDPH) | **Extreme Heat Resources, Guidance and Links Includes:**<br>• Tips for Preventing Heat-Related Illness<br>• Tips for Treating Heat-Related Illness<br>• How to Keep Children Safe During Extreme Heat<br>• Guide to Health Equity-Centered Local Heat Planning |
| **Protecting Disproportionately Affected Populations from Extreme Heat**<br>Centers for Disease Control and Prevention (CDC) | **Protecting Disproportionately Affected Populations from Extreme Heat**<br>Key information and guidance for populations who have higher risks of the negative impacts of extreme heat, including outdoor workers, athletes, children and people with chronic conditions. Available in English and Spanish. |
| **Heat Ready California**<br>Governor's Office of Planning and Research | **Are You Heat Ready, California?**<br>Messaging to communicate information and resources to prepare for, and protect against extreme heat. |
| **Guidance for Local Health Jurisdictions and Community Service Providers for Extreme Heat**<br>California Department of Public Health (CDPH) | **California Department of Public Health Guidance for Local Health Jurisdictions and Community Service Providers During Extreme Heat**<br>This resource is to provide Local Health Jurisdictions (LHJs) and other community-based service providers recommendations and resources to protect communities from heat-related health impacts, with particular focus on protecting and supporting population groups most at risk. It includes:<br>• Information on using the National Weather Service's "HeatRisk" forecast tool<br>• Updated information on factors that increase risk of heat-related illness<br>• Resources and tools for local heat safety planning and preparedness |

## REPORTS/DATA

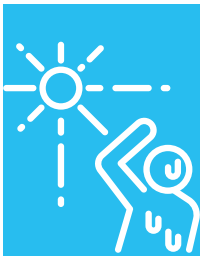
| Link | Description |
|---|---|
| **Changing Behavior on Hot School Days**<br>UCLA Luskin Center for Innovation | **Changing Behavior on Hot School Days Fact Sheet**<br>Information for individual school districts and schools to manage extreme heat events. This fact sheet contains examples and suggestions for establishing protocols or guidelines. |
| **Hot Schoolyards & Hot Classrooms**<br>UCLA Luskin Center for Innovation Heat Infographics | **The Problem with Hot Schoolyards & the Problem with Hot Classrooms** Information for individual school districts and schools to manage classroom and schoolyards when it's hot. These infographic fact sheet contains examples and suggestions for establishing protocols or guidelines. |

## WEATHER FORECAST TOOLS

| Link | Description |
|---|---|
| **Heat Risk Grid**<br>California Department of Public Health (CDPH) | **CDPH Heat Risk Grid: Understanding "HeatRisk" Level, Who is At Risk, and What Actions to Take**<br>Once your school determines the HeatRisk level based on the National Weather Service (NWS) HeatRisk forecast tool, use the CDPH Heat Risk Grid to understand what each risk level means, who is at risk and what general actions can be taken to protect those in your school community. |
| **Heat Risk Forecast Tool**<br>National Weather Service (NWS) | **Heat Forecast Tool**<br>Use the National Weather Service (NWS) HeatRisk Forecast Tool to monitor your location's heat risk level and determine your school community's risk of heat impacts.<br>1. Go to the NWS HeatRisk tool webpage<br>2. Click the magnifier icon and type in your address or location<br>3. Once address / location entered, the tool will display a seven-day forecast starting with the current day, including high and low temperatures and potential heat risk (with HeatRisk levels indicated by the colors green / yellow / orange / red / magenta). |

| | |
|---|---|
| **Weather Advisories**<br>Los Angeles County Department of Public Health (DPH) | **DPH - Weather Advisories**<br>Subscribers of DPH – Weather Advisories will receive updates from Los Angeles County Department of Public Health Heat Advisories, Excessive Heat Warnings and Cold Weather Alerts.<br>Messaging varies month to month and is based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. |

## B. HOW EXTREME HEAT IMPACTS HEALTH



Heat is an underrecognized threat, with many people feeling that they have already experienced extreme heat and are not at risk. (1) Extreme heat however can be very dangerous to health and is responsible for the highest number of annual deaths among all weather-related hazards. (2) Anyone can be at risk, but children are uniquely vulnerable to extreme heat in part because of the natural physiology of developing and growing bodies. (3, 4) Exposures can occur in a variety of ways, and for children and students, this includes through outdoor play and athletics. Children have less control over their physical environments and less knowledge about health effects from heat. (5)

Physical, cognitive, and mental health may be affected by temperature increases, extreme heat, and increased frequency of heat waves. (5) Because higher temperatures contribute to the build-up of harmful air pollutants, higher temperatures and respiratory problems are also linked. (6)

Types of heat-related illness include dehydration, heat cramps, heat exhaustion, and heat stroke. Heat stroke is the most serious and can lead to death. (6) People suffer heat-related illness when the body's temperature control system is overloaded. The body can normally cool itself including by sweating, but under some conditions, these mechanisms fail, and the body cannot cool down. In such cases, a person's body temperature rises rapidly which can damage the brain or other vital organs. (7) Several factors affect the body's ability to cool itself during extremely hot weather, including dehydration, extended exposure to high temperatures, strenuous physical activity, and humidity (high amounts of moisture in the air). When humidity is high, sweat will not evaporate as quickly, preventing the body from releasing heat quickly. (8,9)

Heat-related illnesses and deaths are most often preventable. It's important to consider population groups that are more vulnerable to high heat, at greater risk of heat-related health impacts, and that may be disproportionately impacted. This includes older adults, infants and children, athletes, people with disabilities, pregnant people, unhoused people, those working outdoors or in unconditioned indoor environments, and those with low income. Chronic conditions including heart disease, mental illness, poor blood circulation, and obesity are also risk factors for heat-related illness. (10,11,12) Risks of heat-related illness can be reduced by enhancing education and understanding of the risks of heat and promoting awareness and behavioral changes. (13)

The National Weather Service (NWS) has a useful HeatRisk tool for planning for upcoming heat and its associated potential risk. The tool uses a color-numeric-based index that provides a daily risk level forecast of potential heat-related impacts. A different color/number are included for each level along with identifying the groups potentially most at risk. It incorporates heat-health data from the Centers for Disease Control and Prevention (CDC) and is accompanied by recommendations for heat protection. (14) Additionally, the Los Angeles County Department of Public Health provides excessive heat warnings and heat advisories by direct email and social media.

### Signs and symptoms of heat-related illness include (14):

- Muscle cramping
- Dizziness
- Headache
- Weakness
- Hot and wet or dry skin
- Flushed face
- Rapid heartbeat, low blood pressure
- Breathing very fast (hyperventilation)
- Vomiting, diarrhea
- **Behavioral / cognitive changes* (confusion, irritability, aggressiveness, hysteria, emotional instability, impaired judgement, inappropriate behavior)**
- **Drowsiness, loss of consciousness***
- **Staggering, disorientation***
- **Difficult speaking, slurred speech***
- **Seizures***

***These are signs of the most severe form of exertional heat-related illness, heat stroke, which is life threatening and requires immediate, aggressive body cooling and medical attention.**

### Factors that Increase the Risk of Heat-Related Illness (14)

- **Personal factors.** Age, obesity, dehydration, heart disease, mental illness, poor circulation, sunburn, pregnancy and prescription drug and alcohol use all can play a role and contribute to risk.
- **Exertion level.** Even young and healthy people can get sick from the heat if they participate in strenuous physical activities such as Physical Education during hot weather without gradually acclimatizing to hot conditions over a period of 1–2 weeks.
- **High humidity.** When the humidity is high, sweat won't evaporate as quickly. Evaporation of sweat is the main way the body can cool itself.

## References


1. Interim Guide to Health Equity-Centered Local Heat Planning. California Department of Public Health. 2023. https://www.cdph.ca.gov/Programs/OHE/Pages/Climate-Health-Equity/Local-Heat-Planning-Guide.aspx
2. Extreme Heat. US Department of Homeland Security - Ready.Gov.2023. https://www.ready.gov/heat
3. Extreme Temperatures: Disaster Management Resources. American Academy of Pediatrics.2023. https://www.aap.org/en/patient-care/disasters-and-children/disaster-management-resources-by-topic/extreme-temperatures/
4. Extreme Heat Affects Early Childhood Development and Health: Working Paper No. 1. Early Childhood Scientific Council on Equity and the Environment (2023). https://developingchild.harvard.edu/heat-paper/
5. Climate Change and Children's Health and Well-Being in the United States. United States Environmental Protection Agency. 2023. https://www.epa.gov/system/files/documents/2023-04/CLiME_Final%20Report.pdf
6. Extreme Heat Can Impact Our Health. Centers for Disease Control and Prevention and American Public Health Association. https://www.cdc.gov/climateandhealth/pubs/extreme-heat-final_508.pdf

7. Frequently Asked Questions about Extreme Heat. Centers for Disease Control and Prevention. 2012 https://www.cdc.gov/disasters/extremeheat/faq.html
8. Keep Your Cool in Hot Weather. Centers for Disease Control and Prevention. 2023 https://www.cdc.gov/nceh/features/extremeheat/index.html#:~:text=The%20main%20things%20affecting%20your,as%20it%20may%20need%20to.
9. Humidity. National Geographic. 2023. https://education.nationalgeographic.org/resource/humidity/
10. Protecting Disproportionately Affected Populations from Extreme Heat. Centers for Disease Control and Prevention. 2022 https://www.cdc.gov/disasters/extremeheat/specificgroups.html
11. Health Guidance for Local Health Jurisdictions and Community Service Providers for Extreme Heat. California Department of Public Health. 2023 https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-LHJs.aspx
12. Communicating Heat Risk: A guide to inclusive, effective, and coordinated public information campaigns. UCLA Luskin Center for Innovation. 2024. https://innovation.luskin.ucla.edu/wp-content/uploads/2024/03/Communicating-Heat-Risk.pdf
13. Heat and People with Chronic Medical Conditions. Centers for Disease Control and Prevention. 2017. https://www.cdc.gov/disasters/extremeheat/medical.html
14. Extreme Heat Guidance for Schools. California Department of Public Health. 2023 https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-schools.aspx#

## Highlighted Recommendations

- Follow all highlighted recommendations in toolkit section A - About Extreme Heat including subscribing to Los Angeles County Department of Public Health Weather Advisories.
- Provide information and messaging (see resources in all sections) to staff and students on campus to ensure their awareness of the signs and symptoms of heat-related illness including heat stroke, and how to respond.
- Provide heat-related health education or guidance information to your school community, including for families, in multiple languages to ensure language accessibility. Include information on locating cooling centers.
- Share ongoing communications as needed to raise awareness of the real threats of heat.
- Promote regular breaks during outdoor activities, use of shade, hydration, appropriate clothing, hats and sunscreen among staff and students.
- Encourage staff and students where appropriate, to watch for signs and symptoms of heat-related illness in themselves and others.
- Closely monitor the health and well-being of students who may not exert control over their physical environments. This includes students who may be less aware of and not able to recognize symptoms of heat-related illness including dehydration.
- When it's going to be hot or the HeatRisk forecast level is elevated, assess the conditions of your campus and the planned activities each day. Provide guidance or direction on whether to move locations, modify, reschedule, postpone or cancel physical activities, athletics, and extracurricular activities to reduce the risk of health-related illnesses.
- Identify alternative cool spaces if air conditioning is not available, including the gym, cafeteria or library.
- Create a heat plan with trigger points including for decreased activity, increased attention and messaging on hydration and monitoring symptoms of heat-related illness, and communication to staff, teachers, coaches and families.

- Train school nurses to respond and treat heat-related illness.
- Train student heat ambassadors to share heat-related illness related information and messaging.
- Install or improve cooling equipment whenever possible.
- Avoid use of fans alone in extreme heat (high 90s and up), as fans alone without air conditioning don't cool the air and may cause the body to gain instead of lose heat.
- Maintain good working condition of hydration stations and improve shading where possible.

## Resources

| EDUCATION | |
|---|---|
| **Link** | **Description** |
| **Heat-Related Illness and About Extreme Heat**<br>Centers for Disease Control and Prevention (CDC)<br>English and Spanish | **Warning Signs and Symptoms of Heat-Related Illness**<br>Heat-related illnesses are preventable. Learn the symptoms and what to look for and do if you or someone else shows signs of having a heat-related illness. |
| **Tips for Preventing Heat Illness**<br>Centers for Disease Control and Prevention (CDC) | **Tips for Preventing Heat Illness**<br>Detailed tips on how to stay cool, stay hydrated, and stay informed to prevent heat-related illness. |
| **Extreme Heat Toolkit**<br>Centers for Disease Control and Prevention (CDC) | **Toolkit to Protect Against Dangers of Extreme Heat**<br>Detailed tips, links to Heat and Health Tracker and Air Quality tools, heat-related videos, and social media resources. |

| GUIDANCE | |
|---|---|
| **Link** | **Description** |
| **Guidance for Local Health Jurisdictions and Community Service Providers for Extreme Heat**<br>California Department of Public Health (CDPH) | **California Department of Public Health Guidance for Local Health Jurisdictions and Community Service Providers for Extreme Heat**<br>This resource provides Local Health Jurisdictions (LHJs) and other community-based service providers with recommendations and resources to protect communities from heat-related health impacts, with particular focus on protecting and supporting population groups most at risk. It includes:<br>• Information on using the National Weather Service's "HeatRisk" forecast tool<br>• Updated information on factors that increase risk of heat related illness<br>• Resources and tools for local heat safety planning and preparedness |
| **Heat Plan**<br>Los Angeles Unified School District | **Heat Illness Prevention Plan**<br>Example of a plan to provide workers with the training and equipment necessary to protect them from heat related exposures and illnesses. |
| **Be Informed: Extreme Heat**<br>California Department of Public Health (CDPH) | **Extreme Heat Resources, Guidance and Links Includes:**<br>• Tips for Preventing Heat-Related Illness<br>• Tips for Treating Heat-Related Illness<br>• How to Keep Children Safe During Extreme Heat<br>• Guide to Health Equity-Centered Local Heat Planning |

| | |
|---|---|
| **Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat**<br>California Department of Public Health (CDPH) | **CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat Includes:**<br>• Incorporated updated guidance based on the latest version of the National Weather Service's HeatRisk Forecast Tool.<br>• Updated guidance to address both outdoor activities and indoor activities more clearly, in spaces without cooling.<br>• New "Spotlight" section on youth football and risk of exertional heat-related illness.<br>• Expanded section on proactive actions to take, including information on heat acclimatization, planning, and preparing for heat emergencies, built environment and nature-based solutions and addressing poor air quality during extreme heat. |
| **People with Chronic Medical Conditions**<br>Centers for Disease Control and Prevention (CDC) | **Heat and People with Chronic Medical Conditions**<br>Information on why people with chronic conditions are more vulnerable to heat and a Caretaker Checklist. |

## WEATHER FORECAST TOOLS

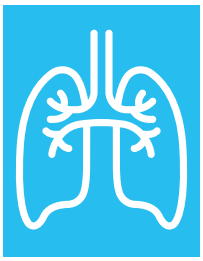
| Link | Description |
|---|---|
| **Weather Advisories**<br>Los Angeles County Department of Public Health | **Department of Public Health (DPH) - Weather Advisories**<br>Subscribers of DPH – Weather Advisories will receive updates from Los Angeles County Department of Public Health for Heat Advisories, Excessive Heat Warnings and Cold Weather Alerts.<br>Messaging varies month to month and is based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. |
| **Heat Risk Forecast Tool**<br>National Weather Service (NWS) | **Heat Risk Forecast Tool**<br>Monitor your location's heat risk level and determine your school community's risk of heat impacts.<br>1.Go to the NWS HeatRisk tool webpage<br>2.Click the magnifier icon and type in your address or location<br>3.Once address / location entered, the tool will display a seven-day forecast starting with the current day, including high and low temperatures and potential heat risk (with HeatRisk levels indicated by the colors green / yellow / orange / red / magenta). |

| | |
|---|---|
| **Health Heat Risk Grid**<br>California Department of Public Health (CDPH) | **CDPH Heat Risk Grid: Understanding HeatRisk Level, Who is At Risk, and What Actions to Take**<br>Once your school determines the HeatRisk level based on the National Weather Service (NWS) HeatRisk forecast tool use the CDPH Heat Risk Grid to understand what each risk level means, who is at risk and what general actions can be taken to protect those in your school community. |

## REPORTS/DATA

| Link | Description |
|---|---|
| **Heat and Health Tracker County Heat & Health Data**<br>Centers for Disease Control and Prevention (CDC) | **CDC Heat & Health Tracker**<br>These interactive sites provide local heat and health information, including emergency department (ED) visits associated with heat-related illness, so that communities can better prepare for and respond to extreme heat events. Allows users to search and explore how extreme heat affects your county, populations who are at risk, public schools and other points of interest. |
| **Heat and Health Tracker Heat and Health Index**<br>Centers for Disease Control and Prevention (CDC) | **The Heat and Health Index**<br>Identify communities where people are most likely to feel the effects of heat on their health, in order to build towards a healthier and more heat-resilient future for all. |
| **Report on Climate Change and Children's Health and Well-Being in the United States**<br>U.S. Environmental Protection Agency (EPA) | **Climate Change and Children's Health Report**<br>A national-scale, multi-sector report which quantifies projected health effects to children from climate change. The report considers factors such as extreme heat, air quality, changing seasons, flooding, and infectious diseases. |
| **Extreme Heat Affects Early Childhood Development and Health**<br>Center on the Developing Child - Harvard University | **Working Paper - Extreme Heat Affects Early Childhood Development**<br>This working document focuses on the ways that environmental conditions shape young children's development. |

## C. AIR QUALITY



Because higher temperatures contribute to the build-up of harmful air pollutants and unhealthy air quality, heat and respiratory problems are linked. The different health effects of air pollution can depend on how different factors including how much of the pollutant is in the air, how long a person is exposed, the person's health conditions, and age. One particularly harmful pollutant, ozone, increases during high temperature days. Ozone has been linked to a variety of negative health symptoms in vulnerable groups like school aged children, older adults, or those with existing asthma or other lung diseases. Some of the symptoms from exposure to ozone are coughing, wheezing, trouble breathing, pain when taking a deep breath, and lung and throat irritation. (1,2,3,4)

Elevated heat has also been associated with increasing droughts which can increase the risk of wildfires and toxic wildfire smoke. Health effects from exposure to particulate matter (pollutants) in wildfire smoke can include eye and lung irritation, exacerbation of asthma, and decreased lung function. Children, due to their developing lungs and other factors are especially vulnerable to health effects of wildfires. Smoke from wildfires negatively impacts the air quality of nearby communities as well as individuals and communities who are downwind from these events, and even those that are thousands of miles away. (5,6)

The Centers for Disease Control and Prevention (CDC) recommends taking action to limit the amount of polluted air a person is exposed to including spending more time indoors during extreme heat days. Additionally, it may be necessary to limit the duration and level of strenuous activities outside, and choosing outdoor activities at times when pollutants are lower (morning and evening). (7,8)
Daily extreme heat and air quality can be tracked using the National Weather Service (NWS) HeatRisk forecast tool, the CDC Heat & Health Tracker, the U.S. Environmental Protection Agency's Air Quality Index, AirNow and South Coast's AQMD's app, which provide real-time and forecasted air quality. (9,10,11,12) In addition to these tools, the California Department of Education and California Department of Public Health provide air quality information and guidance which can help inform planning of outdoor activities including the CDPH Heat Risk Grid, and Extreme Heat Guidance for Schools. (13,14)

Ventilation together with filtration can also improve indoor air quality and reduce exposure to some indoor and outdoor pollutants. (15,16,17)

**Air Quality Levels (18)**
Correlation to Reduction
in Physical Activity "Flag Levels"

## References


1. Air Quality- What is air pollution? South Coast Air Quality Management District (South Coast AQMD). http://www.aqmd.gov/home/air-quality
2. Extreme Heat Can Impact Our Health in Many Ways. American Public Health Association & Centers for Disease Control and Prevention. https://www.cdc.gov/climateandhealth/pubs/extreme-heat-final_508.pdf
3. Air Quality Guide for Ozone. Environmental Protection Agency. 2015 https://document.airnow.gov/air-quality-guide-for-ozone.pdf
4. Nolte, C.G., et al. (2018). Ch. 13: Air quality. In: Impacts, risks, and adaptation in the United States: Fourth national climate assessment, volume II. U.S. Global Change Research Program, Washington, DC, pp. 518–519
5. Wildfire Smoke Factsheet - Children's Health and Wildfires A Resource for Families. Environmental Protection Agency. 2023. https://www.airnow.gov/sites/default/files/2024-03/pehsu-protecting-children-from-wildfire-smoke-and-ash-factsheet.pdf
6. Wildfire Smoke: Considerations for California's Public Health Officials. California Department of Public Health. 2022. https://www.cdph.ca.gov/Programs/EPO/CDPH%20Document%20Library/EOM%20Documents/Wildfire-Smoke-Considerations-CA-PHO_08-2022.pdf
7. Air Quality and Outdoor Activity Guidance for Schools. EPA & CDC 2014. https://document.airnow.gov/air-quality-and-outdoor-guidance-for-schools.pdf
8. Asthma and Air Pollution. Centers for Disease Control and Prevention. 2019. https://www.cdc.gov/nceh/multimedia/infographics/asthma_air_pollution.html
9. National Weather Service Heat Forecast Tools. National Weather Service. https://www.weather.gov/safety/heat-index
10. Heat & Health Tracker. Centers for Disease Control and Prevention. https://ephtracking.cdc.gov/Applications/heatTracker/
11. AirNow.gov. https://www.airnow.gov/?city=Los%20Angeles&state=CA&country=USA
12. South Coast AQMD Air Quality Alerts. http://www.aqmd.gov/home/air-quality/air-alerts
13. CDPH Heat Grid. California Department of Public Health. https://www.cdph.ca.gov/Programs/EPO/CDPH%20Document%20Library/Heat-Risk-Grid.pdf
14. Extreme Heat Guidance for Schools. California Department of Public Health. 2023 https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-schools.aspx#
15. Improving Indoor Air Quality in California Schools. UC Davis Western Efficiency Center. https://wcec.ucdavis.edu/improving-indoor-air-quality-in-california-schools/
16. Creating Healthy Indoor Air Quality in Schools. Environmental Protection Agency. 2024. https://www.epa.gov/iaq-schools
17. Health Guidance for Local Health Jurisdictions. California Department of Public Health. 2023. https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-LHJs.aspx
18. Air quality Flag Program. AirNow.gov. https://www.airnow.gov/air-quality-flag-program/

## Highlighted Recommendations

- Follow all highlighted recommendations in toolkit section A - About Extreme Heat and section B - How Extreme Heat Impacts Health including subscribing to Los Angeles County Department of Public Health Weather Advisories.
- Use air quality forecast tools such as the U.S. Environmental Protection Agency's Air Quality Index, AirNow, and South Coast Air Quality Management air quality alerts, in combination with National Weather Service forecast tools to assess air quality.
- Refer to air quality guidance from the California Department of Education and California Department of Public Health to help inform decisions related to student physical and outdoor activity, and other events.
- Consider implementing an on campus Flag Program – a system of colored flags that corresponds to levels of air quality, or other notifications to staff and students. On unhealthy days, your campus can adjust physical activities to help reduce exposure to air pollution.
- Provide education and messaging to staff and students about the risks of poor air quality and wild-fire smoke including those at risk for increased impact on health such as people with lung diseases, those exercising or working outside.
- On days where physical activity must be decreased, allow for creative and alternative movement, including stretching, putting on a play, or dancing.

## Resources

| EDUCATION | |
|---|---|
| **Link** | **Description** |
| **Air Topics**<br>Environmental Protection Agency (EPA) | **Air (Quality) Topics**<br>Information about air pollution, including climate change, indoor air quality, and common air pollutants. |
| **Improving Indoor Air Quality**<br>California Department of Public Health (CDPH) | **Tips for Improving Indoor Air Quality at School**<br>Strategies for to exposure to COVID-19, harmful chemicals, and wildfire smoke, including natural and mechanical ventilation. |
| **Resources for Teachers, Students and Parents**<br>South Coast Air Quality Management District (AQMD) | **South Coast Air Quality Management District Resources for Teachers, Students and Parents.**<br>Links include Clean Air Program for Elementary Students, Kids Page, and Sensor Educational Toolkit |
| **Air Quality Flag Program**<br>Air Now | **Air Now Air Quality Resources for Schools**<br>Website with multiple resources to implement the air quality notification Flag Program. The Flag Program is a system of colored flags that corresponds to levels of air quality. On unhealthy days, your organization can adjust physical activities to help reduce exposure to air pollution, while still keeping people active. Includes Air Quality Classroom Curriculum and Resources. |
| **Why Is Coco Red?**<br>Environmental Protection Agency (EPA)<br>English and Spanish | **Why Is Coco Red?**<br>Children's book and video teaches the risks of wildfire smoke and how to protect against poor air quality. |
| **Air Quality Activity Guides**<br>Air Now | **Air Quality Activity Guides**<br>This webpage provides air quality guides to protect against poor air quality, including for schools<br>• Guide for Particle Pollution<br>• Guide for Schools<br>• Guide for Ozone |

## WEATHER FORECAST TOOLS

| Link | Description |
|---|---|
| **Air Quality Forecasts**<br>South Coast Air Quality Management District (AQMD) | **Air Quality Forecasts, Air Alerts and Mobile App**<br>Stay informed about forecasted Air Quality in your area as well as wildfire smoke conditions. Mobileapp available in Spanish. |
| **School Air Quality Recommendations**<br>California Department of Education (CDPH) | **Air Quality Recommendations**<br>Recommendations include:<br>• Guidelines for Schools and Wildfire Smoke<br>• School Air Quality Activity Recommendations<br>• Air Quality Guidance Template for Schools<br>• Considerations for School Districts from CDE: Before You Make a Decision to Close a School |
| **Air Quality Index and Air Quality Forecast**<br>Air Now | **Air Now U.S. Air Quality Index (AQI) Tool**<br>The Air Quality Index (AQI) Forecast Tool tells you when air pollution is likely to reach levels that could be harmful and utilizes an interactive, online color-coded index to indicate if air quality is healthy or unhealthy.<br>• Current and forecast air quality maps and data Current fire conditions including fire locations, smoke plumes, and air quality data.<br>• Health and air quality information for the public, healthcare professionals, teachers and students and weathercasters.<br>AirNow is a partnership of the U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration (NOAA), National Park Service, NASA, Centers for Disease Control, and tribal, state, and local air quality agencies. |

## D. IMPACTS OF HEAT ON LEARNING, WELLBEING, AND EMOTIONAL HEALTH

Increasing periods of heat, hotter temperatures, and elevated HeatRisk levels are impacting the health and well-being of students. When the weather is hot, students are at a higher risk for heat-related illness. Extreme heat is responsible for the highest number of annual deaths among all weather-related hazards. (1) Urban heat islands often are found in lower-income communities and heat may disproportionately impact students in those areas. (2)

In addition to physical heat-related illness, heat can affect cognitive and mental health. Heat has negative impacts on learning and is linked to lowered academic performance including test scores. Research from the Harvard Kennedy School found that in schools without air conditioning, every 1-degree Fahrenheit increase in temperature reduces learning over a school year by 1 percent. During extreme heat, a hot classroom may also be distracting and unmotivating. If the school is not air-conditioned, students may miss or intentionally avoid school. For some students, school may be the only place where they can cool off. (3,4,5,6,7)

Heat slows mental reactions and can make it more difficult to concentrate, learn and complete school-work. Heat can also reduce sleep quality contributing to student fatigue and lost learning. Children are also at greater risk of developing anxiety or depression due to high heat. Adolescents especially may respond to heat with irrational and aggressive behaviors. The brain detects extreme heat as a threat to well-being, which activates the stress response system. (3,4,5,6)

Additionally, some medications used in mental health therapy and treatment taken by both children and adults can interfere with a person's ability to regulate heat and awareness that their body temperature is rising. (8)

If students have fewer opportunities for physical activity, switch-up other activities to avoid "cabin fever" or restless, irritable feelings. Crafts, reading or playing board games might be appropriate. Easy stretches or making up fun physical challenges that aren't too strenuous, could help to avoid negative feelings resulting from the heat. (9)

Climate changes such increases in extreme heat and other weather-related events can cause emotional distress. Commonly referred to as "eco-anxiety," schools and educators have the opportunity to discuss student's climate-related experiences, feelings and attitudes including through games, art, and learning. (10,11)

### References


1. Extreme Heat. Ready.gov https://www.ready.gov/heat#:~:text=In%20extreme%20heat%20your%20body,greater%20risk%20from%20extreme%20heat.
2. Protecting Californians with Heat Resilient Schools. UCLA Luskin Center for Innovation. 2023. https://innovation.luskin.ucla.edu/wp-content/uploads/2023/05/Protecting-Califonians-with-Heat-Resilient-Schools.pdf
3. Heat and Learning. Harvard Kennedy School. 2018. https://www.hks.harvard.edu/publications/heat-and-learning
4. Climate Change and Children's Health and Well-Being in the United States. U.S. Environmental Protection Agency, EPA 430-R-23-001. 2023 https://www.epa.gov/system/files/documents/2023-04/CLiME_Final%20Report.pdf
5. Extreme Heat Affects Early Childhood Development and Health. Center on the Developing Child. Harvard University. 2024 https://harvardcenter.wpenginepowered.com/wp-content/uploads/2023/03/ECSCEE-Heat-Paper.pdf
6. The School Year Is Getting Hotter. How Does Heat Affect Student Learning and Well-Being? Education Week. September 2022. https://www.edweek.org/leadership/the-school-year-is-getting-hotter-how-does-heat-affect-student-learning-and-well-being/2022/09

7. The Problem with Hot Classrooms. UCLA Luskin Center for Innovation. 2023. https://innovation.luskin.ucla.edu/publication/the-problem-with-hot-schools/
8. Tips for People Who Take Medication: Coping with Hot Weather. Substance Abuse and Mental Health Services Administration. 2022. https://store.samhsa.gov/sites/default/files/pep23-01-01-001.pdf
9. Extreme Heat: Tips to Keep Kids Safe When Temperatures Soar. Healthy Children.org/American Academy of Pediatrics. 2023. https://www.healthychildren.org/English/safety-prevention/at-home/Pages/Protecting-Children-from-Extreme-Heat-Information-for-Parents.aspx
10. Integrating mental health into climate change education to inspire climate action while safeguarding mental health. Frontiers in Psychology. 2023 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10800611/
11. How Teachers Can Help Younger Students Deal With Climate Anxiety. Education Week. 2023. https://www.edweek.org/leadership/how-teachers-can-help-younger-students-deal-with-climate-anxiety/2023/09

## Highlighted Recommendations

- Follow all highlighted recommendations in toolkit section A - About Extreme Heat and section B – How Extreme Heat Impacts Health, including subscribing to Los Angeles County Department of Public Health Weather Advisories.
- If extreme heat or elevated HeatRisk is forecasted or current, provide information and messaging for school staff and students related to the impact of heat such as need for hydration, impact of heat on physical health, mental health, and learning.
- Prepare indoor activities in advance in the event that physical activity is reduced and heat is challenging the ability of students to focus on school-work.
- Have grade-appropriate activities planned in response to students experience and feelings due to extreme heat, including emotional distress (eco-anxiety).
- Observe how the heat is impacting the ability of students to focus, learn and interact appropriately.
- Provide information for students and families on keeping family homes-units cool that don't have air conditioning to promote health, wellbeing, and better sleep. Include information on locating cooling centers.
- Be aware of students taking medications – including for mental or behavioral health, that impair their ability to stay cool during extreme heat and may make their conditions worse.

## Resources

| EDUCATION | |
|---|---|
| **Link** | **Description** |
| **Heat-Related Illness**<br>Centers for Disease Control and Prevention (CDC)<br>English and Spanish | **Warning Signs and Symptoms of Heat-Related Illness**<br>Heat-related illnesses are preventable. Learn the symptoms and what to do if someone shows signs of having |
| **REPORTS/DATA** | |
| **Report on Climate Change and Children's Health and Well-Being in the United States**<br>U.S. Environmental Protection Agency (EPA) | **Climate Change and Children's Health Report**<br>A national-scale, multi-sector report which quantifies projected health effects to children from climate change. The report considers factors such as extreme heat, air quality, changing seasons, flooding, and infectious diseases. |
| **Extreme Heat Affects Early Childhood Development and Health**<br>Center on the Developing Child - Harvard University | **Working Paper – Extreme Heat Affects Early Child Development**<br>This working document focuses on the ways that environmental conditions shape young children's development. |

## E. HYDRATION AND DIET

Staying hydrated during periods of heat is important to maintain health and prevent heat-related illness. The body needs more water and fluids when it's hot and when you are more physically active. (1,2) Your body loses water throughout the day including when you sweat, breathe and urinate. 1 in 5 children and adolescents do not drink any plain water during the day, and about half of school-aged children are underhydrated. Drinking water can help prevent heat-related illness, but also improves memory and attention, helps children maintain a healthy weight and reduces the risk for some chronic diseases, such as type 2 diabetes and heart disease. (3)

Without enough fluids the body can become dehydrated. Dehydration occurs when the body uses or loses more fluid than it takes in. When this happens, your body doesn't have enough water and other fluids to carry out its normal functions including keeping your body at a normal temperature when it's hot. Dehydration can cause the body to overheat. If a person becomes dehydrated and cannot sweat enough to cool the body, the body's internal temperature may rise to dangerously high levels. (4) Children are at a greater risk of dehydration than adults. This is because in relation to their size, children have a larger proportion of their skin available to lose sweat and be exposed to heat. Additionally, children don't always recognize that they're thirsty, and may need to be encouraged and reminded to drink fluids. (4,5)

### Benefits of Drinking Water (2)

Your body needs to sweat to stay cool.
Water helps you stay focused and able to concentrate

- Helps your immune system and skin
- Protects muscles and joints
- Helps the body absorb oxygen and nutrition

### Signs of Dehydration (4)

Dehydration occurs when you use or lose more water than you take in, and your body doesn't have enough water and other fluids to carry out its normal functions including keeping the body cool when it's hot. Dehydration can be mild and can be severe enough to be life-threatening.

- Feeling thirsty
- Dry tongue or mouth
- Urinating and sweating less than usual
- Dark-colored urine
- Dry skin
- Feeling tired
- Nausea
- Headache
- Dizziness-Confusion
- Irritable and anxious
- Unusually sleepy

### Prevent Dehydration (2)

- Keep a water bottle with you all day
- Add natural ingredients to your water, like fresh strawberries, cucumbers and orange or lemon slices. The flavor may encourage you to drink more water.
- Eat more water-filled fruit and vegetables. Cantaloupe, watermelon, leafy greens and tomatoes all contain 90% water.
- Avoid sugary drinks and drinks with caffeine- these can cause you to lose more body fluid.

## References


1. Heat Stress Hydration. Department of Health and Human Services, Centers for Disease Control and Prevention, and National Institute for Occupational Safety. 2017. https://www.cdc.gov/niosh/mining/userfiles/works/pdfs/2017-126.pdf
2. Water and Healthier Drinks. Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion. Updated June 6, 2022. Accessed January 30, 2024. https://www.cdc.gov/healthyweight/healthy_eating/water-and-he
3. Centers for Disease Control and Prevention. CDC Health Schools. Increase Access to Drinking Water in Schools. 2021. https://www.cdc.gov/healthyschools/features/water_access.htm
4. Dehydration and Heat Stroke. Johns Hopkins Medicine. Accessed January 30, 2024. https://www.hopkinsmedicine.org/health/conditions-and-diseases/dehydration-and-heat-stroke
5. Children and Hydration. Health Kids Association. https://healthy-kids.com.au/parents/children-hydration/althier-drinks.html


## Highlighted Recommendations

- Educate students about the benefits of drinking water - including preventing heat-related illness, improved focus, and overall health.
- Provide regular hydration breaks and ensure easy access to drinking water for staff, teachers and students.
- During periods of extreme heat or elevated HeatRisk provide regular reminders to students to hydrate - specifically younger students who have less capacity to self-assess for thirst.
- Provide reminders for additional hydration after physical activity or direct sun exposure- including posters, text messages and other messaging.
- Maintain campus-wide hydration stations and create guidance for water bottle usage on campus.
- Implement water access and age-appropriate hydration education including guidance on which fluids are best to support hydration, how to assess hydration levels and prevent dehydration.
- Provide families with information on the benefits of hydration and beverages to avoid.
- Provide messaging to students and families on foods that support hydration and those to avoid.
- Be aware that multiple days of extreme high temperatures or elevated HeatRisk will make staff and students more at risk for heat-related illness. Students, especially younger students will require more actions taken by and support from staff to avoid the risk of heat-related illness.
- Review Extreme Heat Guidance resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat .
- Use ongoing messaging and education to create a shared understanding on campus that heat is increasing, lasting longer, and potentially very dangerous to health and wellbeing. Severe heat-related illness is most often preventable.

## Resources

| EDUCATION | |
|---|---|
| **Link** | **Description** |
| **Water Access in Schools Fast Facts**<br>Voices for Healthy Kids | **Water Access in Schools - Fast Facts**<br>Science-approved facts for use in messaging to promote all kids having access to free, clean drinking water in school. |
| **Water in Schools Toolkit**<br>Centers for Disease Control and Prevention (CDC) | **Increasing Access to Drinking Water in Schools Toolkit**<br>Step-by-step guidance to meet federal drinking water re-quirements for school meal programs and help make clean, free drinking water readily available throughout the school setting. |
| **Potter the Otter A Tale About Water**<br>First 5 Santa Clara/ First 5 California | **Potter the Otter – A Tale About Water. First 5 Santa Clara/First 5 California**<br>Free, bilingual book that teaches children to drink water every day, to stay hydrated and healthy. Potter the Otter: A Tale About Water, will also assist in talking with young children about making healthier drink choices. |
| **Water and Healthier Drinks**<br>Centers for Disease Control and Prevention (CDC) | **Water and Healthier Drinks**<br>Outlines the benefits to health of drinking water, tips to drink more water and healthier drink options. |
| **Tips for Preventing Heat-Related Illness**<br>California Department of Public Health (CDPH) | **Tips for Preventing Heat-Related Illness**<br>Outlines the potentially dangerous impact of heat on health and how a very high body temperature can dam-age the brain and other vital organs. Includes health con-ditions that can make it harder for the body to stay cool in hot weather such as old age, obesity, fever, dehydration, heart disease, poor circulation, sunburn and drug and alcohol use. |
| **Social Media Graphics: Extreme Heat**<br>Centers for Disease Control and Prevention (CDC) | **Social Media Graphics – Extreme Heat CDC**<br>Downloadable messages and videos to post on social media communicating steps to protect against extreme heat. Messages include hydration, protecting your skin and preventing health-related illnesses. |
| **Choose Water Tips and Resources**<br>CDPH/Cal Fresh | **Water Tips and Resources Choose Water**<br>Helpful tips to switch from sugary drinks to water, and/or drink more water. |

## F. CLOTHING AND SUN PROTECTION, COOLING AND SHADE

Usually, playing and exercising outside boosts physical and mental health of students. However, high temperatures and extreme heat can pose a significant health risk and cause dehydration, heat exhaustion, heat cramps and heat stroke which is potentially deadly. During periods of extreme heat where students are outside it's important to consider appropriate shading, clothing and sunscreen. Light, loose-fitting clothing offers both adequate ventilation and protection against direct sun exposure. (1)

Exposure to the sun during childhood and adolescence typically plays a critical role in the development of skin cancer as an adult. The CDC reports that effective sun protection is practiced by less than one-third of U.S youth. Sunscreen provides protection from ultraviolet (UV) exposure during childhood and adolescence reduces the risk for skin cancer in adulthood. (2) The body's ability to sweat, or changes in core body temperature are not changed by wearing sunscreen. (3) The California Department of Education Code (Section 35183.5) on *Sun Protection* requires school sites to allow for outdoor use during the school day of articles of sun-protective clothing including, but not limited to, hats. It authorizes sites to set policy regarding type of clothing to be allowed. Students may use sunscreen during the school day without a physician's note or prescription. It also authorizes school sites to establish a policy regarding the use of sunscreen. (4)

Shading and other cooling efforts are essential to protecting students from heat-related illness and lost learning due to heat. Some of these efforts are currently being implemented and others require additional time and planning including school greening efforts. Ongoing efforts to provide shade, greening and air conditioning on school campuses have improved greatly but are not equitable and consistent across the County. (5,6,7,8)

California K–12 schools are not required to have air conditioning or other cooling systems. Although California Education Code Section 17002(d) requires systems in public school facilities to "maintain interior temperatures within normally acceptable ranges," a specific temperature range has not been established.

Air conditioning can help cool down classrooms, and cool roofs and shading, building upgrades, and other strategies can help buildings from absorbing too much heat. (5,6,7)

Shade and greening in outdoor school areas, and other types of shade can also protect students from heat. Additionally, rescheduling outdoor activities to cooler times of day, such as during the morning, can reduce student exposure to extreme heat. Some studies have found that exertional heat-related illness is most likely to occur during mid-day activities, when the temperature is hottest. (9,10,11)

Identifying the shady areas available on campus is important, but air-conditioning is the number one protective factor against heat-related illness. Moving activities from outside to air-conditioned spaces during extreme heat has been shown to prevent heat-related illness. (11)

### What is UV Radiation? (12)

- Ultraviolet (UV) radiation is a form of non-ionizing radiation that is emitted by the sun and artificial sources.
- Overrexposure presents risks including sunburn, premature aging, and skin cancer.
- It's important stay protected from UV radiation year-round.
- It's recommended to use a sunscreen with at least 15 SPF.

### Risks of Exposure to Direct Sunlight (12)

- Dehydration
- Heat-Related Illness
- Heat Exhaustion
- Heat Stroke
- Sunburn
- Skin Cancer

## References


1. Extreme Heat: Tips to Keep Kids Safe When Temperatures Soar. Healthy Children – from the American Academy of Pediatricians. 2023 https://www.healthychildren.org/English/safety-prevention/at-home/Pages/Protecting-Children-from-Extreme-Heat-Information-for-Parents.aspx
2. Guidelines for School Programs to Prevent Skin Cancer. Centers for Disease Control and Prevention. Division of Cancer Prevention and Control, Centers for Disease Control and Prevention. 2023. https://www.cdc.gov/cancer/skin/what_cdc_is_doing/guidelines.htm
3. Sunscreen does not alter sweating responses or critical environmental limits in young adults (PSU HEAT project) American Psychological Society. 2024. https://journals.physiology.org/doi/full/10.1152/japplphysiol.00756.2023?af=R
4. California Education Code § 35183.5. 2002. https://casetext.com/statute/california-codes/california-education-code/title-2-elementary-and-secondary-education/division-3-local-administration/part-21-local-educational-agencies/chapter-2-governing-boards/article-47-miscellaneous-administrative-authority/section-351835-use-of-sun-protective-clothing-or-sunscreen
5. Protecting Californians with Heat-Resilient Schools. UCLA Luskin Center for Innovation. 2023. https://innovation.luskin.ucla.edu/wp-content/uploads/2023/05/Protecting-Californians-with-Heat-Resilient-Schools.pdf
6. Protecting Students from Heat Outdoors. UCLA Luskin Center for Innovation. 2023. 2023. https://innovation.luskin.ucla.edu/wp-content/uploads/2023/10/Action-Area-3-Protecting-Students-from-Heat-Outdoors.pdf
7. The Problem with Hot Schoolyards. UCLA Luskin Center for Innovation. 2023. https://innovation.luskin.ucla.edu/publication/the-problem-with-hot-schools/
8. Shade Planning for America's Schools. Centers for Disease Control and Prevention. 2017 https://19january2017snapshot.epa.gov/sites/production/files/documents/cdc_shade_planning.pdf
9. Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat. California Department of Public Health. 2023. https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-LHJs.aspx
10. Health Guidance for Local Health Jurisdictions. California Department of Public Health. 2023. https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-LHJs.aspx
11. Managing Extreme Heat Recommendations for Schools: Pilot Version. Arizona Department of Health Services. 2021. https://www.azdhs.gov/documents/preparedness/epidemiology-disease-control/extreme-weather/heat/managing-extreme-heat-recommendations-for-schools.pdf
12. Ultra violet radiation and your health. Centers for Disease Control and Prevention 2024. https://www.cdc.gov/radiation-health/features/uv-radiation.html

## Highlighted Recommendations

- Follow highlighted recommendations in toolkit section A-I- including subscribing to the Los Angeles County Department of Public Health Weather Advisories.
- Regularly assess UV levels regardless of temperature.
- Provide sun safety education and messaging on the risks of heat-related illness and skin damage from UV radiation and direct sun exposure.
- Consider implementing CDC guidelines to create sun-safe places that reduce exposure to UV radiation.
- Encourage students to wear protective clothing, hats, sunglasses, and sunscreen, with a minimum of SPF 15.
- Provide education and messaging to staff, students and families on appropriate clothing and sunscreen during periods of heat.
- Identify areas outside where shading protects students during physical activity.
- Promote regular breaks during outdoor activities, use of shade, hydration, appropriate clothing, hats and sunscreen among staff and students.
- Closely monitor the health and wellbeing of students, especially younger students, who may not exert control over their physical environments, who may be less aware of and not able to recognize symptoms of heat-related illness, including dehydration.
- During periods of heat, make determinations and provide guidance on changing locations, rescheduling, deferment or canceling physical activity, athletics, and extracurricular activities.
- Prepare indoor activities in advance in the event that physical activity is reduced and heat is challenging the ability of students to focus on schoolwork.
- Identify alternative cool spaces if air conditioning is not available, including the gym, cafeteria or library.
- Review Extreme Heat Guidance resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat .
- Review School Cooling Funding Opportunities to help campuses to modernize and become resilient against extreme heat.

## Resources

| EDUCATION | |
|---|---|
| **Link** | **Description** |
| **Sun Safety for Young Athletes**<br>Text and Video<br>Cedars-Sinai Kerlan-Jobe Institute for Pediatric Sports | **Sun Safety for Young Athletes**<br>Expert Dr. Zaslo, explains how to properly use sunscreen to protect children and teens. |
| **Sun Safety Tips for Schools**<br>Centers for Disease Control and Prevention (CDC)<br>English and Spanish | **Sun Safety Tips for Schools**<br>Includes how to protect skin from the sun, and sun safety tips for schools and for employers. |
| **Tips to Keep Kids Safe When Temperatures Soar**<br>Healthy Children | **Extreme Heat: Tips to Keep Kids Safe When Temperatures Soar**<br>Several steps to take to beat the heat and protect children from heat-related illness and hazards including clothing. |

| GUIDANCE | |
|---|---|
| **Link** | **Description** |
| **Student Sun Safety**<br>California School Boards Association | **Sample Board Policy - Student Sun Safety**<br>Sample language for a policy to support the prevention of excessive UV radiation exposure by students and to assist students in developing sun-safe habits to use throughout their lives. |
| **School Cooling Funding Opportunities**<br>Los Angeles County Department of Public Health PLACE (Policies for Livable, Active Communities & Environments) | **School Cooling Funding Opportunities How, When, and What to Apply**<br>Grant funding opportunities for schools to modernize campuses and become resilient against extreme heat. Urban heat island reduction is an effort by the County to cool down neighborhoods. Schools are some of the hottest locations in the county due to the nature of their design. The lack of trees on many campuses results in fewer places for students and staff to find cooling shade. Play yards that are dominated by asphalt also increase heat risk. |

| | |
|---|---|
| **Guidelines for School Programs to Prevent Skin Cancer**<br>Centers for Disease Control and Prevention (CDC)<br>English and Spanish | **Guidelines for School Programs to Prevent Skin Cancer**<br>Designed to provide schools with a comprehensive approach to preventing skin cancer among adolescents and young people. CDC's guidelines include seven recommendations for schools from prekindergarten through the 12th grade and are meant to encourage skin cancer prevention on school property and elsewhere. They are based on a review of research, theory, and current practice in skin cancer prevention, health education, and public health. |

## WEATHER FORECAST TOOLS

| Link | Description |
|---|---|
| **Ultraviolet (UV) Index Forecasts**<br>National Weather Service (NWS) | **Ultraviolet (UV) Index Forecasts**<br>Tool to help you determine UV Index in your area and corresponding chart. |

## G. PHYSICAL EDUCATION AND EXTRA CURRICULAR ACTIVITIES

Physical education is an important part of the school curriculum and plays a significant role in the well-being and educational experience of students. California law (Education CodeSection 51210 & CodeSection 51222) establishes the priority of physical education instruction. The law requires 200 minutes of physical education every ten school days for students in grades one through six and 400 minutes of physical education every ten school days for students in grades seven through twelve. (1) Given the increasing temperatures and periods of extreme heat it's important to take proactive steps to avoid risks of heat-related illness as a result of physical education. This includes extracurricular activities that occur during or after regular school hours, such as band, theater or student clubs. (2)

In schoolyards, heat can cause unhealthy conditions for students playing sports or enjoying recess. Outdoor areas on school campuses may become dangerously hot including play equipment, turf and asphalt. Researchers have documented surface temperatures of 145 degrees Fahrenheit and above on schoolyards during extreme heat. (2,3)

Active participation in physical education activities during periods of extreme heat may be challenging and pose dangerous health risks. If not prepared, students can be susceptible to heat-related illnesses such as heat stroke, heat exhaustion, heat cramps, and heat syncope. Children prevented from playing outdoors due to extreme heat may miss out on the health and academic benefits of outdoor time and physical activity. (2,4)

Heat illnesses can be prevented by adopting these cooling strategies: regular breaks, hydration, gradual pace, and the use of lightweight clothing. (2,4)

It may be necessary to move activities from outside to an air-conditioned space. Identifying the shady areas available outside is important but air-conditioning is the number one protective factor against heat-related illness.

### References


1. Physical Education Model Content Standards for California Public Schools Kindergarten Through Grade Twelve. California Department of Education. January, 2005. https://www.cde.ca.gov/be/st/ss/documents/pestandards.pdf
2. Extreme Heat Guidance for Schools. California Department of Public Health. 2023 https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-schools.aspx#
3. Protecting Californians with Heat-Resilient Schools. UCLA Luskin Center for Innovation. May 2023. https://innovation.luskin.ucla.edu/wp-content/uploads/2023/05/Protecting-Californians-with-Heat-Resilient-Schools.pdf
4. Heat and Athletes. Centers for Disease Control and Prevention. 2019. https://www.cdc.gov/disasters/extreme-heat/athletes.html

## Highlighted Recommendations

- Subscribe to the Los Angeles County Department of Public Health - Weather Advisories to receive Heat Advisory, Excessive Heat Warning, and Cold Weather Alerts notifications. Notifications are based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. See resources below for more information.
- Regularly assess weather in your area using the National Weather Service (NWS) HeatRisk forecast tool and corresponding HeatRisk levels. The forecast can provide advance warning and inform heat safety planning and preparedness before extreme heat occurs.
- Know your location's HeatRisk level to help assess need the to reschedule, cancel activities, or move to alternative or cooled indoor spaces. If a circumstance is unclear or uncertain, cancel. High air temperature, humidity, direct sunlight, and other factors increase the risk of heat-related illness. Cancel all outdoor and un-conditioned indoor activities when the HeatRisk level is Red or Magenta during the heat of the day.
- Refer to the CDPH Heat Grid to inform any necessary communication- such as warnings and steps to prevent heat-related illness including changes to physical education, sports or extracurricular activities and risks to those at higher risk for heat-related illness.
- Proceed with extra caution when extreme heat occurs suddenly, lasts for an extended period of time, and/or reaches new high temperatures. Generally, in these scenarios, very few outdoor activity participants (or those participating in indoor spaces without cooling) are "acclimatized", meaning have adjusted as is possible, to extreme heat. Exertional heat stroke can occur within the first 60 minutes of exertion and may be triggered without exposure to high ambient temperatures.
- Identify areas outside where shading protects students during physical activity.
- Promote regular breaks during outdoor activities, use of shade, hydration, appropriate clothing, hats and sunscreen among staff and students.
- Closely monitor the health and wellbeing of students, especially younger students, who may not exert control over their physical environments, who may be less aware of and not able to assess or recognize symptoms of heat-related illness, including dehydration.
- During periods of heat, make determinations and provide guidance on changing locations, rescheduling, deferment or canceling physical activity, athletics, and extracurricular activities.
- On days where outdoor play or physical activity must be decreased, allow for creative and alternative movement, including stretching, putting on a play, or dancing.
- Prepare indoor activities in advance in the event that physical activity is reduced and heat is challenging ability of students to focus on schoolwork.
- Assess uniforms, costumes and other equipment required for recess, physical education or an extracurricular activity such as band or theater for their appropriate comfort and safety during periods of extreme heat.
- Review Extreme Heat Guidance resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat.

## Resources

| EDUCATION | |
|---|---|
| **Tips for Preventing Heat Illness**<br>Centers for Disease Control and Prevention (CDC) | **Tips for Preventing Heat-Related Illness**<br>Detailed tips on how to stay cool, stay hydrated, and stay informed to prevent heat-related illness. |
| **Heat Illnesses**<br>Centers for Disease Control and Prevention (CDC)<br>English and Spanish | **Heat-Related Illnesses: What To Look For and What To Do**<br>Learn the symptoms and what to do if someone shows signs of having a heat-related illness. |

| GUIDANCE | |
|---|---|
| **Link** | **Description** |
| **Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat**<br>California Department of Public Health (CDPH) | **CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat Includes:**<br>• Incorporated updated guidance based on the latest version of the National Weather Service's "HeatRisk" forecast tool.<br>• Updated guidance to more clearly address both outdoor activities and indoor activities in spaces without cooling.<br>• New "Spotlight" section on youth football and risk of exertional heat-related illness.<br>• Expanded section on proactive actions to take, including information on heat acclimatization, planning and preparing for heat emergencies, built environment and nature-based solutions and addressing poor air quality during extreme heat. |
| **Protecting Californians with Heat-Resilient Schools**<br>UCLA Luskin Center for Innovation | **Protecting Californians with Heat-Resilient Schools**<br>School districts and schools can help reduce heat exposure in schools and schoolyards through engineered and nature-based solutions. |
| **Band Safety Course**<br>National Federation of State High School Associations (NFHS) | **NFHS Band Safety - Elective Course**<br>Steps to beat the heat and protect children from heat-related illness and hazards including clothing. |

| WEATHER FORECAST TOOLS | |
|---|---|
| **Link** | **Description** |
| **Heat Risk Forecast Tool**<br>National Weather Service (NWS) | **National Weather Service Heat Risk Forecast Tool**<br>Use the National Weather Service (NWS) HeatRisk Forecast Tool to monitor your location's heat risk level and determine your school community's risk of heat impacts. |
| **Heat Risk Grid**<br>California Department of Public Health (CDPH) | **CDPH Heat Risk Grid: Understanding HeatRisk Level, Who is At Risk, and What Actions to Take**<br>Once your school determines the HeatRisk level based on the National Weather Service (NWS) HeatRisk forecast tool, use the CDPH Heat Risk Grid to understand what each risk level means, who is at risk and what general actions can be taken to protect those in your school community. |
| **School Air Quality Recommendations**<br>California Department of Education (CDE) | **Air Quality Recommendations for School**<br>Hotter temperatures and drought conditions can increase the risk of wildfires. Wildfire smoke can severely impact air quality locally and downwind. Heath effects from exposure to particulate matter in wildfire smoke can include eye and lung irritation, exacerbation of asthma, and other impacts. The School Air Quality Activity recommendation provides school staff with actions to protect students during poor air quality. |

## H. ATHLETICS

All youth and student athletes are susceptible to the risks of exercising in a hot environment, particularly those participating in high-exertion sports. Among teenage athletes, heat-related illness is a leading cause of death. (1,2)

Air temperature, humidity, direct sunlight, and other factors can increase risk of heat-related illness and multiple days of extreme high temperatures will make students and athletes more vulnerable. Students gradually acclimatizing to hot conditions over a period of 1–2 weeks can help provide protection against heat-related illness. Among the fundamentals of a Heat Acclimatization Program are 1) a slow progression in activity level – duration and intensity; 2) adjusting workouts as heat and humidity increase, including close monitoring and a prompt response to developing problems; and 3) proper hydration. (2)

It's important to monitor students for heat-related illness, and use heat forecast tools including the National Weather Service HeatRisk Forecast Tool and WetBulb Globe Temperature (WBGT) which measures not only temperature and humidity (the "heat index") but also wind speed, sun angle, and cloud cover. (3,4)

Depending on the temperature and heat index, schools may want to consider guidance from California Department of Health and others, regarding cancellation and rescheduling of practice and sporting events. (2,3,4)

Assembly Bill 2800, California High School Coaching Education and Training Program: Heat-related Illness requires high school coaches to be trained with a basic understanding of heat-related illness and authorizes such training to be fulfilled through entities offering free, online, or other types of training courses. (5) Check local resources for laws and policies related to extreme heat and athletics.

According to the California Interscholastic Foundation, risks for heat-related illness should be considered when planning and preparing for any sports activity. Several heatstroke deaths continue to occur in high school sports each season in the United States. Heatstroke deaths are preventable, if the proper precautions are taken. (6)

### Spotlight: Youth Football (2)

Rates of exertional heat-related illness (EHI) among high school athletes are higher in American football than all other sports combined.The intensity and duration of practices and games, the timing of the practice season in the summer, heat-trapping uniforms and protective equipment and other factors can all contribute to increased risk of EHI among youth football players.

**To help prevent exertional heat-related illness:**

- Have athletes undergo a period of heat acclimatization (see below for more information)
- Encourage athletes to arrive at practice hydrated
- Allow athletes unlimited access to hydration
- Modify practice when environmental conditions become extreme
- Use weather forecasting for heat stress preparation (see below)
- Allow regular rest and hydration breaks
- Reduce the intensity of practice, time of practice and equipment worn
- Learn more at USA Football - Heat Preparedness and Hydration

## Signs and symptoms of heat-related illness include (2)

- Muscle cramping
- Dizziness
- Headache
- Weakness
- Hot and wet or dry skin
- Flushed face
- Rapid heartbeat, low blood pressure
- Breathing very fast (hyperventilation)
- Vomiting, diarrhea
- **Behavioral / cognitive changes* (confusion, irritability, aggressiveness, hysteria, emotional instability, impaired judgement, inappropriate behavior)**
- **Drowsiness, loss of consciousness***
- **Staggering, disorientation***
- **Difficult speaking, slurred speech***
- **Seizures***

***These are signs of the most severe form of exertional heat-related illness, heat stroke, which is life threatening and requires immediate, aggressive body cooling and medical attention (see next section for more information).**

For general information on signs, symptoms and treatment of heat-related illness, visit the CDC website.

## Treatment Of Exertional Heat Stroke (2)

- When exertional heat stroke (EHS) is suspected for an athlete, **cool first and transport second**. Cooling treatment must be provided immediately, before being transported by emergency medical services.
- Remove all equipment and extra layers of clothing
- Cool the athlete as quickly as possible within 30 minutes via whole body cold or ice water immersion (place the athlete in a tub with ice and water approximately 35-58 degrees F).*
- Stir water and add ice throughout cooling process.
- If cold-water immersion is not possible (no tub), aggressively douse the athlete's whole body with cold water. Or if that's not possible, take the athlete to a shaded, cool area and use rotating cold, wet towels to cover as much of the body surface as possible.
- While cooling is being initiated, activate emergency medical system by calling 9-1-1.

Exertional heat stroke has a high survival rate when **immediate cooling via cold water immersion or aggressive whole-body dousing in cold water** is initiated. Immediate means within 10 minutes of collapse.

*The Inter-Association Task Force for Preventing Sudden Death in Secondary School Athletics Programs recommends schools having a cold-water immersion tub if a risk of EHS exists.

Learn more about preventing, recognizing and treating exertional heat stroke at UConn Korey Stringer Institute – Heat Stroke

### Helping Athletes Prevent Heat-Related Illness (2)

- Remind athletes that getting hot can make them sick.
- Limit their outdoor activity, especially midday when the sun is hottest.
- Pace their activity. Start activities slowly and pick up the pace gradually.
- Educate them to drink more water than usual and don't wait until they're thirsty to drink more.
- Muscle cramping may be an early sign of heat-related illness.

## References


1. Heat-related illness Among High School Athletes --- United States, 2005--2009. MMWR. 2010. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5932a1.htm#:~:text=on%20this%20topic%3F-,Heat%20illness%20during%20practice%20or%20competition%20is%20a%20leading%20cause,commonly%20during%20preseason%20football%20practice.
2. CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat. Released June 30, 2023. Revised July 21, 2023. https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-schools.aspx
3. National Weather Service Heat Forecast Tools. National Weather Service.https://www.weather.gov/safety/heat-index
4. CDPH Heat Grid. California Department of Public Health. https://www.cdph.ca.gov/Programs/EPO/CDPH%20Document%20Library/Heat-Risk-Grid.pdf
5. Law Requiring Training in Heat-related illness for all California Coaches. California Interscholastic Federation. https://www.cifstate.org/sports-medicine/heat_illness/index
6. Heat-related illness. California Interscholastic Foundation. https://cifstate.org/sports-medicine/heat_illness/index


## Highlighted Recommendations

- Subscribe to Los Angeles County Department of Public Health - Weather Advisories to receive Heat Advisory, Excessive Heat Warning, and Cold Weather Alerts notifications. Notifications are based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. See Resources below for more information.
- Review Extreme Heat Guidance resources from CDPH including Health Guidance for Local Health Jurisdictions During Extreme Heat and CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat
- Regularly assess the weather in your area using the National Weather Service (NWS) HeatRisk forecast tool and corresponding HeatRisk levels. The forecast can provide advance warning and inform heat safety planning and preparedness before extreme heat occurs.
- Consider using WetBulb Globe Temperature (WBGT) to assess safe levels of athletic activity which measures not only temperature and humidity (the "heat index") but also wind speed, sun angle, and cloud cover. High air temperature, humidity, direct sunlight, and other factors increase risk of heat-related illness.
- Know your location's HeatRisk level to help assess need the to reschedule, cancel athletic activities, or move to alternative or cooled indoor spaces. If a circumstance is unclear or uncertain, it may be safer to cancel.
- Additionally, refer to the CDPH Heat Grid to inform any necessary communication- such as warnings and steps to prevent heat-related illness including changes to physical education, sports or extracurricular activities and risks to those at higher risk for heat-related illness.
- Identify areas outside where shading protects students during physical activity.

- Promote regular breaks during outdoor activities, hydration, appropriate clothing, hats and sunscreen among staff and students.
- Closely monitor athletes for signs and symptoms of heat-related illness, and adequate hydration. Remember that younger students, who may not exert control over their physical environments, may be less aware of and not able to recognize symptoms of heat-related illness or dehydration.
- During periods of heat or elevated HeatRisk, make determinations and provide guidance on changing locations, rescheduling, deferment or canceling physical activity, athletics, and extracurricular activities.
- Make sure water is available during outdoor activities. Encourage regular breaks and hydration. Evaluate conditions regularly and make appropriate adjustments – for example, postpone or reschedule practices whenever possible to be held early in the morning or late in the evening to avoid times when heat is more severe.
- Promote compliance with all CIF heat training requirements and Parent/Student CIF Heat-related illness Information Sheet when there is a student heat-illness event.
- Train coaches and school nurses to recognize, respond to and treat heat-related illness.
- Refer to CIF Beat the Heat for heat and sports guidance resources.

## Resources

| EDUCATION | |
|---|---|
| **Link** | **Description** |
| **Heat Related-Illness Training**<br>Centers for Disease Control and Prevention (CDC) | **Training: Recognizing, Preventing, and Treating Heat-Related Illness**<br>Training to teach and reinforce awareness of heat-related illness among coaches, athletic trainers, students, school nurses, parents, and teachers. |
| **Heat Illness Course**<br>National Federation of State High School Associations | **Free Course to Prevent Heat Illness**<br>This course is designed to provide the fundamentals of a strong heat acclimatization plan and guidelines for limiting activities to account for changing environmental conditions and other contributing risk factors. It highlights the importance of an appropriate hydration plan and establishing an Emergency Action Plan in case of a suspected exertional heat stroke. |
| **Heat Acclimatization and Heat Illness Prevention Position Statement**<br>National Federation of State High School Associations | **Heat Acclimatization and Heat Illness Prevention Position Statement**<br>Exertional Heatstroke (EHS) is the leading cause of preventable death in high school athletics. This NFHS Sports Medicine Advisory Committee (SMAC) position statement serves as the companion piece to the NFHSLearn.com online course "Heat Illness Prevention." |

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| **Hydration Urine Color Chart**<br>University of Connecticut<br>Korey Stringer Institute | **Hydration Urine Color Chart**<br>Although there is no consensus as to which methods of hydration assessment are best, the urine color chart can be used to help maintain an appropriate level of hydration before, during, after exercise. |
| **Tips and Guidelines for Heat Acclimatization**<br>UConn Stringer Institute | **Heat Acclimatization Guidelines**<br>Heat acclimatization is a strategy in which the body is taught to adapt to a hot environment through frequent and repeated exposure to that environment. Includes guidelines to improve an athlete's ability to handle heat over the course of 7 to 14 days. |
| **Heat Illnesses**<br>Centers for Disease Control and Prevention (CDC)<br>English and Spanish | **Heat-Related Illnesses: What To Look For and What To Do**<br>Learn the symptoms and what to do if someone shows signs of having a heat-related illness. |
| **Heat and Sports Resources to Beat the Heat**<br>California Interscholastic Federation (CIF) | **Heat and Sports Resources to Beat the Heat Includes:**<br>• Extreme Heat and Air Quality Policy<br>• WBGT Category<br>• Emergency Action Plan<br>• Heat Illness<br>• WetBulb Globe Temperature |
| **Heat Illness Information Sheet**<br>California Interscholastic Federation (CIF) | **Parent/Student CIF Heat Illness Information Sheet**<br>According to CIF's 2022-23 Constitution and Bylaws, a student-athlete who exhibits signs of heat-related illness while participating in, or immediately following, an athletic activity must be removed immediately from participating or playing a game for the remainder of the day and may not return to play until the athlete is evaluated by a licensed health care provider and receives written clearance to return to play from that health care provider. |

| GUIDANCE | |
|---|---|
| **Link** | **Description** |
| **NEW Heat Illness Prevention Law (Bill No: AB 1653)**<br>California State Senate Education Committee & California Interscholastic Federation (CIF) | **NEW Heat Illness Prevention Law**<br>**Bill No: AB 1653 – Preventing Heat Illness**<br>This bill requires the California Interscholastic Federation (CIF), in consultation with the California Department of Education(CDE), to develop guidelines, procedures, and safety standards for the prevention and management of exertional heat-related illness, as specified, by July 1, 2024. |
| **Heat illness Prevention Resource Guide**<br>California State University Student Activities | **Student Activities Heat Illness Prevention Resource Guide**<br>The purpose of the Student Activities Heat Illness Prevention Resource Guide is to develop a process for assessing environmental risk factors for heat-related illness during student activities which may take place on or off a California State University campus. |
| **Heat Illness Brief**<br>California School Boards Association & California Interscholastic Federation | **Preventing Catastrophic Heat Illness Governance Brief**<br>Information about what heat-related illness is and the potential danger it poses to student athletes. Includes preventative steps that schools, districts, and county offices of education can take to prevent heat-related illness, and questions for school boards to consider in order to keep students safe from heat-related illness. |
| **Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat**<br>California Department of Public Health (CDPH) | **CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat**<br>This guidance includes:<br>• Incorporated updated guidance based on the latest version of the National Weather Service's HeatRisk forecast tool.<br>• Updated guidance to more clearly address both outdoor activities and indoor activities in spaces without cooling.<br>• New "Spotlight" section on youth football and risk of exertional heat-related illness.<br>• Expanded section on proactive actions to take, including information on heat acclimatization, planning and preparing for heat emergencies, built environment and nature-based solutions and addressing poor air quality during extreme heat. |

## WEATHER FORECAST TOOLS

| Link | Description |
|---|---|
| **Heat Risk Forecast Tool**<br>National Weather Service (NWS) | **Heat Risk Forecast Tool**<br>Use the National Weather Service (NWS) HeatRisk Forecast Tool to monitor your location's heat risk level and determine your school community's risk of heat impacts. |
| **Heat Risk Grid**<br>California Department of Public Health (CDPH) | **CDPH Heat Risk Grid: Understanding HeatRisk Level, Who is At Risk, and What Actions to Take**<br>Once your school determines the HeatRisk level based on the National Weather Service (NWS) HeatRisk forecast tool, use the CDPH Heat Risk Grid to understand what each risk level means, who is at risk and what general actions can be taken to protect those in your school community. |
| **Wet Bulb Globe Temperature Overview**<br>California Interscholastic Federation (CIF) | **WetBulb Globe Temperature**<br>According to the National Weather Service, a WetBulb Globe Temperature (WBGT) is a measure of the heat stress in direct sunlight, which takes into account: temperature, humidity, wind speed, sun angle, and cloud cover (solar radiation). This differs from the heat index, which takes into consideration temperature and humidity and is calculated for shady areas.<br>Using a WBGT monitor on-site provides more accurate data than that from the National Weather Service and can help athletic programs to dictate modifications in activity (work/rest ratios, hydration breaks, equipment work, length of practice) that make sports safer for all participants. |

## I. PREPARING FOR THE HEAT SEASON

Currently, there is no statewide policy for addressing extreme heat events during the school day. Actions related to planning, preparedness, and response to extreme heat are the responsibility of individual school districts and school sites. School leadership, teachers, aides, and other staff should be aware of and follow all procedures that have been established for the school site. The best time to prepare for extreme heat is before it happens.

**Steps to prepare at school sites include:**

- Provide information and education to students, teachers, and staff on heat-related risks including the signs and symptoms of heat related illness and preventative actions.
- Identify and assign responsibilities for monitoring weather and air quality warnings that are issued by local and state authorities.
- Identify temperature thresholds specifying when physical activity, sports, and other outdoor activities should be modified, postponed, or cancelled.
- Assess cooling equipment including fans and air conditioners to make sure they are in working order.
- Assess the locations where students and staff spend time to identify spaces most appropriate for activities that need to be modified during periods of extreme heat.
- Establish effective communication strategies to teach teachers, staff and students leading up to and during extreme heat events.
- Include heat preparation and response as a topic in school assemblies, staff meetings, and in communications to families in the weeks leading up to high heat season and during high heat events.
- Encourage students to take preventative behaviors, such as drinking water to stay hydrated.

### Resources

| GUIDANCE | |
|---|---|
| **Link** | **Description** |
| **Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat**<br>California Department of Public Health (CDPH) | **CDPH Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat**<br>This guidance includes:<br>• Incorporated updated guidance based on the latest version of the National Weather Service's "HeatRisk" forecast tool.<br>• Updated guidance to more clearly address both outdoor activities and indoor activities in spaces without cooling.<br>• New "Spotlight" section on youth football and risk of exertional heat-related illness.<br>• Expanded section on proactive actions to take, including information on heat acclimatization, planning and preparing for heat emergencies, built environment and nature-based solutions and addressing poor air quality during extreme heat. |

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| **Guidance for Local Health Jurisdictions and Community Service Providers for Extreme Heat**<br>California Department of Public Health (CDPH) | **CDPH Local Extreme Heat Guidance**<br>Recommendations and resources to protect communities from heat-related health impacts, with particular focus on supporting population groups most at risk. |
| **Be Informed: Extreme Heat**<br>California Department of Public Health (CDPH) | **Extreme Heat Resources, Guidance and Links**<br>Includes:<br>• Tips for Preventing Heat-Related Illness<br>• Tips for Treating Heat-Related Illness<br>• How to Keep Children Safe During Extreme Heat<br>• Guide to Health Equity-Centered Local Heat Planning |

## WEATHER FORECAST TOOLS

| Link | Description |
|---|---|
| **Weather Advisories**<br>Los Angeles County Department of Public Health (DPH) | **Department of Public Health (DPH) Weather Advisories**<br>Subscribers of DPH – Weather Advisories will receive updates from Los Angeles County Department of Public Health for Heat Advisories, Excessive Heat Warnings and Cold Weather Alerts.<br><br>Messaging varies month to month and is based on the National Weather Service and Los Angeles County Office of Emergency Management weather alert announcements. |
| **Heat Risk Forecast Tool**<br>National Weather Service (NWS) | **Heat Risk Forecast Tool**<br>Use the National Weather Service (NWS) HeatRisk Forecast Tool to monitor your location's heat risk level and determine your school community's risk of heat impacts. |
| **Heat Risk Grid**<br>California Department of Public Health (CDPH) | **CDPH Heat Risk Grid: Understanding HeatRisk Level, Who is At Risk, and What Actions to Take**<br>Once your school determines the HeatRisk level based on the National Weather Service (NWS) HeatRisk forecast tool, use the CDPH Heat Risk Grid to understand what each risk level means, who is at risk and what general actions can be taken to protect those in your school community. |

## Acknowledgements

The Office of Environmental Justice and Climate Health would like to thank and acknowledge the students, school staff, administrators, and community partners who participated in the development of this toolkit for their willingness to engage and share information. Your insights were invaluable in shaping our understanding of the impact of extreme heat on educational environments and the current gaps in tailored guidance and resources. Additionally, we acknowledge and appreciate the support provided by our colleagues from within the Department of Public Health and the other County Agencies who collaborated on this project.

# We Want to Hear from You

**Dear Stakeholders,**

As we strive to make future iterations of this toolkit as effective as possible, we invite you to share your questions, comments, suggestions, and feedback.

This toolkit is designed to:

- Reduce the risk of and prevent student and staff heat-related illness and deaths
- Ensure student learning at school continues, without disruption, on hot days

**We are particularly interested in feedback on the following areas:**

**Clarity and Usability:** Are the content areas easy to understand and provide enough information?

**Relevance:** Do highlighted recommendations address the specific challenges your school faces due to extreme heat?

**Effectiveness:** Have you tried any of the highlighted recommendations, and if so, what was your experience?

**Additional Resources:** Are there any other tools, resources, or strategies you believe should be included?

**General Feedback:** Any other comments or suggestions to improve the overall quality and utility of the toolkit.

Your input will help ensure that the guidance provided is relevant, actionable, and beneficial for schools.

**PLEASE SEND YOUR FEEDBACK TO DPH-OEJCH@PH.LACOUNTY.GOV.**