



HOLYOKE PUBLIC SCHOOLS

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Extreme Weather: Heat

Hot, humid weather should be considered by principals/their designees when making decisions about staff and student safety. According to the Federal Emergency Management Agency (FEMA), extreme heat is a long period (2 to 3 days) of high heat and humidity with temperatures above 90 degrees. A heat wave combined with drought can be particularly dangerous. Please note that excessively hot weather can produce conditions such as heat cramps, heat exhaustion, and heat stroke in extreme situations, which should be considered a medical emergency. All of these conditions can occur in active individuals in hot weather. Individuals with respiratory challenges, such as those with asthma, are particularly susceptible to extreme heat, and the higher the temperature, the greater the risk of triggering or aggravating asthma symptoms.

Further, asthma symptoms may be triggered when those with asthma move between high-heat areas and air-conditioned spaces. Indirect effects of extreme heat within the school setting have been found to impair brain function, learning, and academic performance. Students exposed to extreme heat may tire more easily, become more easily distracted, and experience a diminished ability to complete challenging activities within the classroom.

When school buildings do not have air-conditioning building-wide, they rely on opening windows to provide heat relief during hot weather. The Massachusetts Bureau of Environmental Health Indoor Air Quality Program recommends maintaining indoor air temperatures between 70 and 78 degrees F to provide for the comfort of the building occupants. If indoor temperatures exceed 78 degrees F, then the practices recommended within this document should be used to increase the thermal comfort of the building. The principal/their designee is responsible for taking/monitoring the building temperature. Relying on opening windows and cross-ventilation in hot weather will, at best, render the indoor temperature equal to the outdoor temperature. However, the heat load carried by the building materials, which are exposed to direct sunlight, further increases the internal temperature of buildings. Also, single-pane windows, skylights, and exterior brick can radiate heat into the interior of the building over the school day. Older school buildings are not designed to prevent heat transfer from sun-heated exterior walls and windows to interior occupied spaces. Therefore, many school buildings are not equipped to provide for the comfort of building occupants during hot/humid weather. If the practices within this document are used, and the temperature still exceeds 78 degrees, especially if the humidity is also high (above 60%), then consideration needs to be given for early dismissal.

Special consideration should be given when staff members or students wear face coverings/masks/PPE due to COVID-19 or other specific situations, which may lead to an increased heat burden associated with the face coverings/masks or personal protective equipment (PPE), which reduce the body's normal ways of getting rid of heat by sweating and other means; increase the effort required to breathe through face-covering, mask, or respirator (for nurses); and may elevate the perception of anxiety brought on during wear. This may be particularly true for custodians, nurses, cafeteria workers, and some of our vocational teachers and students.

A. Proven Practices to Reduce Extreme Heat Exposure in Schools

Schools can reduce heat stress by addressing factors such as humidity, air circulation, classroom temperature, student and staff hydration, and physical activity. The following table summarizes practices that can address these factors.

Recommended Interventions and Practices	Steps	Role
<p>Know your risk - monitor classroom conditions</p>	<ol style="list-style-type: none"> 1. Sign up to receive local emergency alerts and weather warnings or monitor your local forecast for temperature and relative humidity. 2. Consider equipping classrooms with a portable temperature and humidity sensor. Use it to monitor the heat index. 3. When retrofitting HVAC systems, consider installing a temperature and humidity sensor in each classroom. 4. Monitor data and share with school officials and families as needed. 	<p>School administrators, Facilities managers, Custodians, Nurses, Teachers</p>
<p>Modify activity based on the weather</p> <p>Please note that some building occupants may be particularly susceptible to heat-related problems. Individuals who are at greater risk include:</p> <ul style="list-style-type: none"> ● Infants and children up to four years of age ● People over 65 years of age ● Individuals who are overweight ● Individuals who have asthma or diabetes, use a wheelchair, are physically ill, especially those with heart disease or high blood pressure, or who take certain medications. <p><i>These individuals should be monitored, and accommodations should be made to address hot weather</i></p>	<ol style="list-style-type: none"> 1. Take preventative actions such as <ol style="list-style-type: none"> a. increasing hydration b. rescheduling events c. Modifying or eliminating outside recess and moving activities to cooled, indoor environments during high-heat days 2. Implementing action framework (see below for different heat risk levels). 	<p>School administration, in collaboration with the school nurse</p>

<p><i>concerns beyond hydration. Contact your school nurse with questions and concerns.</i></p>		
<p>Designate and maintain “cool rooms” in schools</p> <p><i>A cool room is a designated area within the school that is designed to protect occupants during extreme heat events.</i></p>	<ol style="list-style-type: none"> 1. Establish designated “cool rooms” in schools when air-conditioning is not available building-wide. These spaces should be equipped with air conditioning and open to all students and staff on high-heat days. Nurses’ offices should not be used for cool rooms. 2. Monitor students and staff for signs of heat stress and refer them to health services as needed. 3. Establish a maintenance schedule for cool room cooling equipment to ensure it is functional and available for use during the spring, summer, and fall. 	<p>School Administrators, Facilities Director, Custodians, Nurses</p>
<p>Adjust conditions in classrooms with limited air conditioning</p>	<ol style="list-style-type: none"> 1. Encourage hydration by ensuring accessible water, and students and staff are encouraged to drink water throughout the day. 2. Reduce heat gain by closing windows and blinds during the hottest part of the day. Consider installing opaque, heat-absorbing curtains to block heat transmission, where possible 2. Use a window fan facing inside when it is cooler outside than inside, such as in the early morning. 3. Increase airflow by keeping interior doors, transoms, and windows open 1-2 inches (prevent fall risk) and using window fans facing outside to create cross-ventilation. Exterior doors should not be left open unless they have lockable screen doors for security. Ensure window screens are in place first to prevent pests (i.e., stinging insects, bees, birds, squirrels, mice, etc.) from gaining access to the building. 4. Operating the Univent system will supplement the use of open windows. This exhaust vent system creates airflow and removes heat and water vapor from the classrooms. 	<p>School administrators, Sodexo (water), Facilities Director, Custodians, Nurses, and Teachers</p>

	<p><i>Note: When temperatures are above 90°F, these interventions alone will likely not prevent heat-related illness.</i></p>	
<p>Heat health education for staff, students, and families</p>	<ol style="list-style-type: none"> 1. Plan in-class activities for students to learn about extreme heat and actions to reduce heat-related risks at home and school. 2. Provide training for school staff to increase awareness of the risks posed by extreme heat and signs of heat illness. 4. Send home information about protecting children during extreme heat <p><i>Note: See resources section for example materials</i></p>	<p>School Administrators, Nurses, Teachers, and Students</p>
<p>Consider adapting school buildings to be more resilient to heat; some examples follow:</p>	<ol style="list-style-type: none"> 1. Avoid materials that increase heat in outdoor play areas. 2. Install shade structures (canopies, tents, sails, etc.) strategically throughout play, seating, and arrival/dismissal areas. 3. Plant trees to provide natural shade coverage (trees offer many climate, health, and habitat co-benefits). Always plan for the maintenance of vegetation when planting. 4. Increase the number of water fountains or water coolers. 5. Install cool roofing products. 6. Retrofit schools with central air conditioning systems. 7. Weatherize buildings and electrify HVAC systems to improve cooling system efficiency. 8. Where possible, dedicated exhaust ventilation directs waste heat produced by equipment to the outdoors. When exhaust ventilation does not exist, minimize using cooking equipment, photocopiers, fax machines, computers, fluorescent lights, etc. 9. Ensure all air conditioners are serviced and in good working order with clean filters. 	<p>School administrators, Facilities Managers and Custodians</p>

B. Considerations for Outdoor Activity

1. Heat Index

Heat Index can be thought of as the perception of heat by an individual. The body cools by producing sweat to reduce internal body heat through the skin. When relative humidity increases, the ability of moisture to evaporate from the skin decreases, preventing heat loss and increasing an individual’s discomfort. The heat index describes how hot a person feels as the temperature, in combination with relative humidity, rises. Please refer to the document "Child Care Weather Watch" located at the end of these guidelines in the Appendix for more detailed information for principals and lead building administrators about heat index and considerations for outdoor activity.

Heat Index Number -see attached chart for details <i>(considers BOTH temperature and humidity)</i>	Suggested Action
Less than 90	Normal Recess
90-97	Limit Outdoor Recess to 10 minutes or less. Provide fluids and shade, and ensure proper dress of students. Provide Heat health education.
98-104	Indoor Recess, encourage hydration & provide fluids. Provide Heat health education.
105 or above	Depending on the circumstances, Heat Dismissal may be recommended. <i>(The principal/lead building administrator would consult with the Superintendent regarding heat dismissal in advance of the anticipated event and ensure pre-planning for staff and families)</i> Provide fluids, assemble students inside, and hydrate them before boarding buses. Provide Heat health education. <i>The superintendent makes the recommendation for school closure, and the announcement goes through the superintendent’s office.</i>

While the above chart serves as a guide, it is important to look at individual needs. The school nurse should be consulted regarding health concerns related to students with diabetes, asthma, cardiac, and other health conditions before recess time. Your school nurse will assess and make personalized health care recommendations based on that student’s specific needs. Considering the heat, it is best to err on the side of caution and keep students inside if the Temperature/Heat Index appears to be borderline or

rising. Hydration, availability of protection from the sun while on the playground, and student clothing must be considered.

2. Health-Related Concerns

During extreme heat, people are susceptible to dehydration and heat-related illnesses. Know the symptoms and watch out for health-related illnesses. Consult with and refer cases of concern to your school nurse.

1. **Dehydration** occurs when you use or lose more fluid than you take in, and your body doesn't have enough water and other fluids to perform normal functions.
 - Symptoms: Extreme thirst, less frequent urination, dark-colored urine, fatigue, dizziness, confusion
 - Treatment: Get the person to rest in a comfortable position in a cooler place. Give the person water or fluids with electrolytes to help them rehydrate.

2. **Heat cramps** are muscular pains and spasms caused by heavy sweating.
 - Symptoms: Muscular pains and spasms that usually occur in the legs or abdomen
 - Treatment: Get the person to rest in a comfortable position in a cooler place. Give the person water or fluids with electrolytes to help them rehydrate.

3. **Heat exhaustion** typically occurs when people overexert themselves in a warm, humid place, often affecting those doing strenuous work in hot weather. Body fluids are lost through heavy sweating, and blood flow to the skin increases, causing blood flow to vital organs to decrease. This results in a form of mild shock.
 - Symptoms: Cool, moist, pale, or flushed skin, nausea, dizziness, headache, weakness, and/or exhaustion
 - Treatment: Get the person to rest in a comfortable position in a cooler place. Remove or loosen tight clothing and apply cool, wet cloths like towels or sheets. If the person is conscious, give them half a glass of cool water or fluids with electrolytes every 15 minutes, ensuring they drink slowly. Watch the person carefully for changes in their condition and **call 911 if it doesn't improve**.

4. **Heatstroke** is the most serious heat emergency and is life-threatening. Heatstroke develops when systems in the body begin to stop functioning due to extreme heat. Heatstroke may cause brain damage or death if the body is not cooled quickly.
 - Symptoms: Extremely high body temperature, hot and red skin (dry or moist), loss of consciousness, changes in the level of responsiveness, rapid and weak pulse, rapid and shallow breathing, vomiting, confusion, and/or seizures
 - Treatment: A person suffering from heat stroke needs immediate assistance. **Call 911** and move the person to a cooler place. Immerse the individual in a cool bath, wrap in cold, wet sheets, or cover the person in bags of ice.

C. Heat Health Education for Staff, Students, and Families

Educating staff, students, and families regarding heat safety is recommended, and some items follow. Refer families to HPS's website, "Health, Wellness and Nursing" section, for detailed information about protecting children from extreme heat in English and Spanish, which can be printed out and sent home to families.

- Never leave children or pets alone in a closed vehicle. Even with the windows cracked open, interior temperatures can rise almost 20°F within 10 minutes.
- Slow down and avoid strenuous activity.
- PE teachers and coaches must have firm guidelines to prevent heat-related illness among athletes.
- Wear lightweight, loose-fitting, light-colored clothing. Light colors reflect heat and sunlight and help maintain normal body temperature.
- Drink plenty of water — even if you are not thirsty. Avoid liquids high in sugar, alcohol, or caffeine. Eat well-balanced, light, regular meals.
- Stay indoors as much as possible and limit exposure to the sun. Do not leave pets outside unattended.
- If you must be outdoors, limit your outdoor activity to the morning and evening hours. Try to rest often in shady areas so your body temperature will have a chance to recover. Use sunscreen with a high SPF and wear a wide-brimmed hat.
- If you do not have air conditioning, stay on the lowest floor, out of the sun. Use fans to stay cool and avoid using lights, photocopiers, faxes, computers, etc. Consider spending time in air-conditioned public spaces when possible. After school hours, use air-conditioned spaces, including libraries, theaters, stores, malls, and other community facilities.
- Unhealthy levels of heat and humidity and non-air-conditioned schools may require the dismissal of students on those days.
- Check with your local authorities to find locations of cooling centers or shelters near you.
- If there are power outages, you may need to take additional precautions or go to a cooling center or emergency shelter to stay cool.
- Know the symptoms of heat-related illnesses and watch out for them. Call 9-1-1 to report emergencies.
- Be a good neighbor. Check on family/friends/neighbors, especially the elderly and those who live alone, have medical conditions, may need additional assistance, and have no air conditioning.

Appendix A

Understand the Weather

Wind-Chill



- 30° is *chilly* and generally uncomfortable
- 15° to 30° is *cold*
- 0° to 15° is *very cold*
- -20° to 0° is *bitter cold* with significant risk of *frostbite*
- -20° to -60° is *extreme cold* and *frostbite* is likely
- -60° is *frigid* and exposed *skin will freeze* in 1 minute

Heat Index



- 80° or below is considered *comfortable*
- 90° beginning to feel *uncomfortable*
- 100° *uncomfortable* and may be *hazardous*
- 110° considered *dangerous*

All temperatures are in degrees Fahrenheit

Child Care Weather Watch

		Wind-Chill Factor Chart (in Fahrenheit)									
		Wind Speed in mph									
Air Temperature		Calm	5	10	15	20	25	30	35	40	
	40	40	36	34	32	30	29	28	28	27	
	30	30	25	21	19	17	16	15	14	13	
	20	20	13	9	6	4	3	1	0	-1	
	10	10	1	-4	-7	-9	-11	-12	-14	-15	
	0	0	-11	-16	-19	-22	-24	-26	-27	-29	
-10	-10	-22	-28	-32	-35	-37	-39	-41	-43		

Comfortable for out door play
 Caution
 Danger

		Heat Index Chart (in Fahrenheit %)												
		Relative Humidity (Percent)												
Air Temperature (F)		40	45	50	55	60	65	70	75	80	85	90	95	100
	80	80	80	81	81	82	82	83	84	84	85	86	86	87
	84	83	84	85	86	88	89	90	92	94	96	98	100	103
	90	91	93	95	97	100	103	105	109	113	117	122	127	132
	94	97	100	103	106	110	114	119	124	129	135			
	100	109	114	118	124	129	130							
104	119	124	131	137										

Child Care Weather Watch

Watching the weather is part of a child care provider's job. Planning for playtime, field trips, or weather safety is part of the daily routine. The changes in weather require the child care provider to monitor the health and safety of children. What clothing, beverages, and protections are appropriate? **Clothe** children to maintain a comfortable body temperature (warmer months - lightweight cotton, colder months - wear layers of clothing). **Beverages** help the body maintain a comfortable temperature. Water or fruit juices are best. Avoid high-sugar content beverages and soda pop. **Sunscreen** may be used year around. Use a sunscreen labeled as SPF-15 or higher. Read and follow all label instructions for the sunscreen product. Look for sunscreen with UVB and UVA ray protection. **Shaded** play areas protect children from the sun.

Condition GREEN - Children may play outdoors and be comfortable. Watch for signs of children becoming uncomfortable while playing. Use precautions regarding clothing, sunscreen, and beverages for all child age groups.

INFANTS AND TODDLERS are unable to tell the child care provider if they are too hot or cold. Children become fussy when uncomfortable. Infants/toddlers will tolerate shorter periods of outdoor play. Dress infants/toddlers in lightweight cotton or cotton-like fabrics during the warmer months. In cooler or cold months dress infants in layers to keep them warm. Protect infants from the sun by limiting the amount of time outdoors and playing in shaded areas. Give beverages when playing outdoors.

YOUNG CHILDREN remind children to stop playing, drink a beverage, and apply more sunscreen. OLDER CHILDREN need a firm approach to wearing proper clothing for the weather (they may want to play without coats, hats or mittens). They may resist applying sunscreen and drinking beverages while outdoors.

Condition YELLOW - use caution and closely observe the children for signs of being too hot or cold while outdoors. Clothing, sunscreen, and beverages are important. Shorten the length of outdoor time.

INFANTS AND TODDLERS use precautions outlined in Condition Green. Clothing, sunscreen, and beverages are important. Shorten the length of time for outdoor play.

YOUNG CHILDREN may insist they are not too hot or cold because they are enjoying playtime. Child care providers need to structure the length of time for outdoor play for the young child. OLDER CHILDREN need a firm approach to wearing proper clothing for the weather (they may want to play without coats, hats or mittens), applying sunscreen and drinking liquids while playing outdoors.

Condition RED - most children should not play outdoors due to the health risk. INFANTS/TODDLERS should play indoors and have ample space for large motor play. YOUNG CHILDREN may ask to play outside and do not understand the potential danger of weather conditions. OLDER CHILDREN may play outdoors for very short periods of time if they are properly dressed, have plenty of fluids. Child care providers must be vigilant about maximum protection of children.

Understand the Weather

The weather forecast may be confusing unless you know the meaning of the words.

Blizzard Warning: There will be snow and strong winds that produce a blinding snow, deep drifts, and life threatening wind chills. Seek shelter immediately.

Heat Index Warning: How hot it feels to the body when the air temperature (in Fahrenheit) and relative humidity are combined.

Relative Humidity: The percent of moisture in the air.

Temperature: The temperature of the air in degrees Fahrenheit.

Wind: The speed of the wind in miles per hour.

Wind Chill Warning: There will be sub-zero temperatures with moderate to strong winds expected which may cause hypothermia and great danger to people, pets and livestock.

Winter Weather Advisory: Weather conditions may cause significant inconveniences and may be hazardous. If caution is exercised, these situations should not become life threatening.

Winter Storm Warning: Severe winter conditions have begun in your area.

Winter Storm Watch: Severe winter conditions, like heavy snow and ice are possible within the next day or two.

Child Care Weather Watch, Iowa Department Public Health, Healthy Child Care Iowa, Produced through federal grant (MCJ19T029 & MCJ19KCC7) funds from the US Department of Health & Human Services, Health Resources & Services Administration, Maternal & Child Health Bureau. Wind-Chill and Heat Index information is from the National Weather Service.

Appendix B

Holyoke, MA

Weather averages

Overview Graphs

Month	High / Low (°F)	Rain
January	34° / 17°	6 days
February	38° / 19°	6 days
March	47° / 28°	8 days
April	60° / 38°	7 days
May	71° / 48°	9 days
June	79° / 57°	8 days
July	84° / 62°	7 days
August	82° / 60°	7 days
September	74° / 52°	7 days
October	63° / 41°	6 days
November	51° / 33°	7 days
December	39° / 23°	7 days

aap.org

Cdc.gov

Crimmins, A. et al., USGCRP (2016) The Impacts of Climate Change on Human Health in the US: A Scientific Assessment. US Global Change Research Program Washington, DC. dx.doi.org/10.7930/JOR49NQX accessed 3/18/24

<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/heat-stress-employers.html>

[FEMA Be Prepared for Extreme Heat](#) accessed 3/18/24

idph.iowa.gov/Portals/1/Files/HCCI/weatherwatch.pdf

healthychildren.org

MAAP Healthy Schools, HEAL School Heat Policy Draft, 5/2023

MAAP Healthy Schools, HEAL School Heat Policy Draft Summary Table, 5/2023

[mass.gov /service-details/extreme-heat-safety-tips](https://mass.gov/service-details/extreme-heat-safety-tips)

ma.gov bureau of environmental health

mayoclinic.org/diseases-conditions/dehydration/symptoms-causes/syc-20354086

NOAA

<https://www.osha.gov/sites/default/files/covid-19-cloth-coverings-indoor-heat.pdf>

<https://www.doe.mass.edu/covid19/faq/>