

Extreme Temperatures

Tennessee is prone to extreme hot and cold temperatures and can pose serious health risks, and it is crucial to have a plan in place to manage these situations effectively. All children, youth, and adults are susceptible to risks when being outdoors. This document provides guidelines for managing extreme temperature conditions (both hot and cold) to ensure the safety and well-being of students and staff in school districts.

Extreme Heat

Extreme Heat is defined as temperatures exceeding 90°F (32°C) with high heat and humidity levels for at least two to three days. Children, older adults and people with certain illnesses and chronic conditions are more susceptible to heat-related illnesses. The body's ability to cool itself is challenged during hot and humid weather. When the body's temperature rises faster than it can cool down it can lead to [heat-related illnesses](#). Outdoor activities must be balanced with frequent breaks and adequate hydration.

Here are some [tips](#) to keep students and staff safe and prevent heat related illnesses:

- Stay informed about weather-related health & safety updates.
- Wear appropriate clothing by choose lightweight, loose-fitting clothing.
- Stay in an air-conditioned place as much as possible.
- Limit outdoor activity, especially during the middle of the day when the sun is hottest.
- Schedule workouts and practices earlier or later in the day when the temperature is cooler.
- Pace activity. Start activities slow and pick up the pace gradually.
- Drink more water than usual, and do not wait until you are thirsty to drink more. Muscle cramping may be an early sign of heat-related illness.
- Monitor and accommodate students with health conditions that may be exacerbated by extreme temperatures.

Types of Heat Illnesses

Heat Cramps may be the first sign of heat-related illness and may lead to heat exhaustion or stroke.

- Symptoms: Painful muscle cramps and spasms usually in legs and abdomen and Heavy sweating.
- First Aid:
 - Apply firm pressure on cramping muscles or gently massage to relieve spasm.
 - Give sips of water unless the person complains of nausea, then stop giving water.
- Seek immediate medical attention if cramps last longer than 1 hour.

Heat Exhaustion

- Symptoms: Heavy sweating, weakness, or tiredness, cool, pale, clammy skin; fast, weak pulse, muscle cramps, dizziness, nausea or vomiting, headache, fainting,
- First Aid:
 - Move the person to a cooler environment, preferably a well air-conditioned room.
 - Loosen clothing.
 - Apply cool, wet clothes, or have the person sit in a cool bath.

- Offer sips of water.
- If the person vomits more than once,
- Seek immediate medical attention if the person vomits, symptoms worsen or last longer than 1 hour

Heat Stroke

- Symptoms: Throbbing headache, confusion, nausea, dizziness, body temperature above 103°F, hot, red, dry, or damp skin, rapid and strong pulse, fainting, loss of consciousness.
- First Aid:
 - Call 911 or ensure the victim is taken to a hospital immediately.
 - Heat stroke is a severe medical emergency. Delay can be fatal. Move the victim to a cooler, preferably air-conditioned, environment. Reduce body temperature with a cool cloth or bath. Use a fan if heat index temperatures are below the high nineties. A fan can make you hotter at higher temperatures. Do NOT give fluids.

Extreme Heat Terms

- **Heat Wave** - Prolonged period of excessive heat, often combined with excessive humidity.
- **Heat Index** - A number in degrees Fahrenheit (F) that tells how hot it feels when relative humidity is added to the air temperature. Exposure to full sunshine can increase the heat index by 15 degrees.
- **Excessive Heat Watch** - Conditions are favorable for an excessive heat event to meet or exceed local Excessive Heat Warning criteria in the next 24 to 72 hours.
- **Excessive Heat Warning** - Heat Index values are forecast to meet or exceed locally defined warning criteria for at least 2 days (daytime highs=105-110° Fahrenheit).
- **Heat Advisory** - Heat Index values are forecast to meet locally defined advisory criteria for 1 to 2 days (daytime highs=100-105° Fahrenheit).

Extreme Cold

Extreme Cold is defined as temperatures falling below 32°F (0°C) with wind chills making it feel colder. Extreme cold magnifies the risk of cold-related illnesses, including frostbite and hypothermia, a serious condition involving a drop in body temperature and requiring immediate medical attention. The following safety [tips](#) can ensure the safety and wellbeing of students and staff:

- Plan for indoor recess or physical activities to keep students warm and active.
- Keep dry. Change wet clothing frequently to prevent a loss of body heat. Wet clothing loses all of its insulating value and transmits heat rapidly.
- If you must go outside, wear several layers of loose-fitting, lightweight, warm clothing rather than one layer of heavy clothing. The outer garments should be tightly woven and water repellent.
- Wear mittens, which are warmer than gloves.
- Wear a hat and cover your mouth with a scarf to reduce heat loss.
- Ensure students are not outside for extended periods and keep a close watch on signs of frostbite or hypothermia.

Cold-related Illnesses

Frostbite is a serious condition caused by exposure to extremely cold temperatures. Watch for: a white or grayish-yellow skin area; skin that feels unusually firm or waxy; numbness. If you detect symptoms of frostbite, seek medical care.

Hypothermia, or abnormally low body temperature, is a dangerous condition that can occur when a person is exposed to extremely cold temperatures.

- Warnings signs of hypothermia include:
 - Adults - shivering, exhaustion, confusion, fumbling hands, memory loss, slurred speech drowsiness.
 - Infants - bright red, cold skin, very low energy.

If you notice any of these signs, take the person's temperature. If it is below 95° F, the situation is an emergency—get medical attention immediately.

Extreme Cold Terms

- **Freezing Rain** - Rain that freezes when it hits the ground, creating a coating of ice on roads, walkways, trees, and power lines.
- **Sleet** - Rain that turns to ice pellets before reaching the ground. Sleet also causes moisture on roads to freeze and become slippery.
- **Wind Chill**- Windchill is the temperature it “feels like” when you are outside. The NWS provides a Windchill Chart to show the difference between air temperature and the perceived temperature and the amount of time until frostbite occurs. For more information, visit: <http://www.nws.noaa.gov/om/winter/windchill.shtml>.
- **Winter Weather Advisory** - Winter weather conditions are expected to cause significant inconveniences and may be hazardous. When caution is used, these situations should not be life threatening. The NWS issues a winter weather advisory when conditions are expected to cause significant inconveniences that may be hazardous. If caution is used, these situations should not be life-threatening.
- **Winter Storm Watch** - A winter storm is possible in your area. Tune in to NOAA Weather Radio, commercial radio, or television for more information. The NWS issues a winter storm watch when severe winter conditions, such as heavy snow and/or ice, may affect your area but the location and timing are still uncertain. A winter storm watch is issued 12 to 36 hours in advance of a potential severe storm. Tune in to NOAA Weather Radio, local radio, TV, or other news sources for more information. Monitor alerts, check your emergency supplies, and gather any items you may need if you lose power.
- **Winter Storm Warning** - A winter storm is occurring or will soon occur in your area.
- **Blizzard Warning** - Sustained winds or frequent gusts to 35 miles per hour or greater and considerable amounts of falling or blowing snow (reducing visibility to less than a quarter mile) are expected to prevail for three hours or longer.
- **Frost/Freeze Warning** - Below freezing temperatures are expected.

School Building Maintenance

Extreme temperatures can pose significant challenges for school buildings, impacting both students and staff. Here are a few guidelines handling extreme temperatures in the school environments:

Heat

- **Cooling Systems:** Ensure air conditioning systems are operational and well-maintained. Consider portable fans or air coolers for classrooms without central air.
- **Shading:** Install blinds or shades on windows to reduce solar heat gain. Consider using window films to reflect heat.
- **Hydration:** Provide access to water stations and encourage regular hydration.
- **Dress Code:** Implement a flexible dress code that allows for light, breathable clothing.
- **Adjust Schedules:** If possible, schedule outdoor activities for cooler parts of the day and move physical education classes indoors.
- **Monitoring:** Keep track of indoor temperatures and use fans or coolers to maintain a comfortable environment.
- **Breaks:** Increase the frequency of breaks and encourage students to stay hydrated.

Cold

- **Heating Systems:** Regularly inspect and maintain heating systems. Ensure there are backup heaters or sources of warmth.
- **Insulation:** Check insulation and weatherproof windows and doors to prevent heat loss.
- **Dress Code:** Encourage students to dress warmly and in layers. Provide information about the importance of proper winter clothing.
- **Adjust Schedules:** If extreme cold is a concern, consider modifying outdoor activities or shortening the school day.
- **Monitoring:** Regularly monitor indoor temperatures to ensure they remain within a safe range (typically above 68°F or 20°C).
- **Breaks:** Allow for indoor breaks and ensure that students have access to warm areas.

Best Practices for School Buses

The guidelines below are effective approaches for managing school bus operations during extreme temperatures to ensure student safety and vehicle reliability.

Extreme Cold

- **Pre-Trip Inspection:**
 - Ensure the engine and battery are in good condition. Freezing weather can reduce battery efficiency.

- Check anti-freeze levels and ensure the engine coolant mixture is appropriate for low temperatures.
 - Confirm that windshield wipers and defrosters are functioning correctly.
 - Make certain tires are properly inflated and have sufficient tread depth.
 - Know your route in case of emergency evacuation: identify areas where you can pullover, such as community center, church, gas station, etc.
- **During Operation:**
 - Allow extra time for the bus to warm up before starting the route.
 - Keep the bus interior at a comfortable temperature for students.
 - Monitor weather forecasts for potential hazards like ice and snow. Adjust routes, as necessary.
 - Ensure that the bus's heating system is fully operational and that all windows and doors are properly sealed to retain heat.
 - **Emergency Preparedness:**
 - Keep emergency supplies onboard, including blankets and a first-aid kit.
 - Instruct drivers to remain with the bus in the event of a breakdown and to contact dispatch immediately.
 - Watch for frost bite and hypothermia and treat it

Extreme Heat

- **Pre-Trip Inspection:**
 - Verify that windows open and close properly to allow for airflow.
 - Ensure that the bus's cooling system is maintained, and the coolant levels are adequate.
 - Know your route in case of emergency evacuation: identify areas where you can pullover, such as community center, church, gas station, etc.
- **During Operation:**
 - Ensure that the bus drivers and students have access to water and are encouraged to stay hydrated.
 - Monitor the interior temperature to maintain a comfortable environment. Make sure the windows are down for good air flow.
 - Have students remove any extra or unnecessary clothing in order to stay cool
- **Emergency Preparedness:**
 - Keep a supply of water and basic first-aid supplies on the bus.
 - Recognize signs of heat exhaustion and heatstroke.
 - Seek shade and cool environments if the bus breaks down, and to contact dispatch immediately.

By implementing these strategies, schools can better protect the health and safety of students and staff during extreme temperatures.

Additional Resources:

- [Extreme Temperatures](#) (TEMA)
- [Weather Safety](#) (NOAA)
- [Extreme Heat Safety Checklist](#) (American National Red Cross)
- [Prepare for Extreme Heat](#) (Ready.gov)
- [Warning Signs and Symptoms of Heat Related Illnesses](#) (CDC)
- [Extreme Heat](#) (CDC)
- [Extreme Heat Information Sheet](#) (FEMA)
- [Extreme Cold](#) (Weather.gov)
- [Winter Weather](#) (Ready.gov)
- [Winter Weather: Before, During, and After](#) (CDC)