



**National Oceanic and Atmospheric Administration  
National Weather Service  
Raleigh, North Carolina**

**EXCESSIVE HEAT AWARENESS: ACTIVITIES FOR CHILDREN**

**Younger children:**

- Begin a talk about hot weather. How do they feel when it gets hot outside? Do they start to sweat? Discuss how sweat helps keep your body from getting too hot.
- Step outside on a warm day. Ask them how they feel. Then, using a misting bottle filled with tepid water, spritz them on the arm or face with water. How do they feel after being misted? They should feel cooler. That's what sweating does—helps the body stay cool.
- Introduce the concept of evaporation. Dampen a towel, and hang it up. The next day, have the children examine the now-dry towel. Where did all of the water go? Discuss how water is made up of tiny particles called molecules. In a solid form (ice), the molecules move very slowly. In a warmer, or liquid, state, the molecules move faster. Finally, in gas form, the molecules move even faster. The molecules of water on the towel moved faster and faster until they escaped into the air as water vapor.
- Demonstrate the opposite of evaporation (condensation) by taking a very cold glass of water and placing it on a table. Within a few minutes, water droplets will form on the outside of the glass. Ask the children, "Where did the water come from? Did it leak out of the glass?" The answer is that air, which is laden with water vapor, comes in contact with the glass. This causes some of the water molecules to slow down and attach themselves to the glass. You can connect this to the previous experiment by explaining that the same water molecules that disappeared from the towel in the first activity are now reappearing on the outside of the water glass.
- Have the children draw a picture of what they think a hot day looks like. What would they do to cool off on a hot day? Eat popsicles, play in the sprinkler, go swimming?
- Discuss the concept of temperature. Show them a thermometer, and explain how it shows how hot or cold it is outside. Take an outside shade temperature at about the same time each day for a few weeks, and make a chart of the results. If desired, also take an outside temperature reading in the sun, and compare it to the shade reading.
- Demonstrate how hot the sun is by placing one piece of chocolate in the sun, another nearby in the shade, and possibly a third inside an air-conditioned room. Discuss what happened and why.
- Demonstrate evaporation by doing salt paintings. Dissolve salt in an equal measure of warm water, add a few drops of food coloring, and stir to dissolve most of the salt. Repeat with different colors of food coloring. Paint a picture with the salt water. Ask the children what they think will happen after it dries. Let the picture dry overnight, & discuss the results.

(over)

### **Older children:**

- Discuss the effects of humidity on evaporation. The more humid the air is, the less additional water it is able to hold. Inside an air-conditioned room, have a student dip one hand in tepid water. Start a timer and measure how long it takes for the hand to be completely dry. Next, step outside (but in the shade) on a hot humid day, and do the same thing. It should take longer for the water to totally evaporate outside compared to inside, since the relative humidity inside the air conditioning is lower and therefore the air can hold more moisture.
- Discuss the effects of evaporation on temperature. Purchase or borrow a sling psychrometer (operating instructions are available on the Internet). This instrument is used to measure temperature and humidity, by giving a dry-bulb temperature and a wet-bulb temperature. Use the sling psychrometer to take both readings, then use a conversion table or weather calculator (found in meteorological texts or online) to calculate the relative humidity. Take measurements at various times of the day (e.g. early morning and again in mid afternoon) and chart the results.
- Have the children use various weather forecast sources (such as weather.gov, other websites, phone apps, and/or TV news) to put together their own forecast for their school. On a large sheet of paper, have them draw pictures depicting the expected weather for each day, along with the high and low temperatures. Use references to determine what the "normal" highs and lows are for that time of year, and discuss how the "normal" is just the average of all of the temperatures on that date over many years. Are the forecast temperatures above, below, or close to normal? Have the children put together a "weather report" video just like TV weathercasters do.
- Introduce the idea of warm air masses and cold air masses. Research various weather sources (see above) and use blank maps to plot cold fronts, warm fronts, high pressure areas, and low pressure areas. Include on the map several temperature readings from around the region. Where is it hottest and why? Where is it coolest? Research temperatures around the globe. What countries have the hottest temperatures?