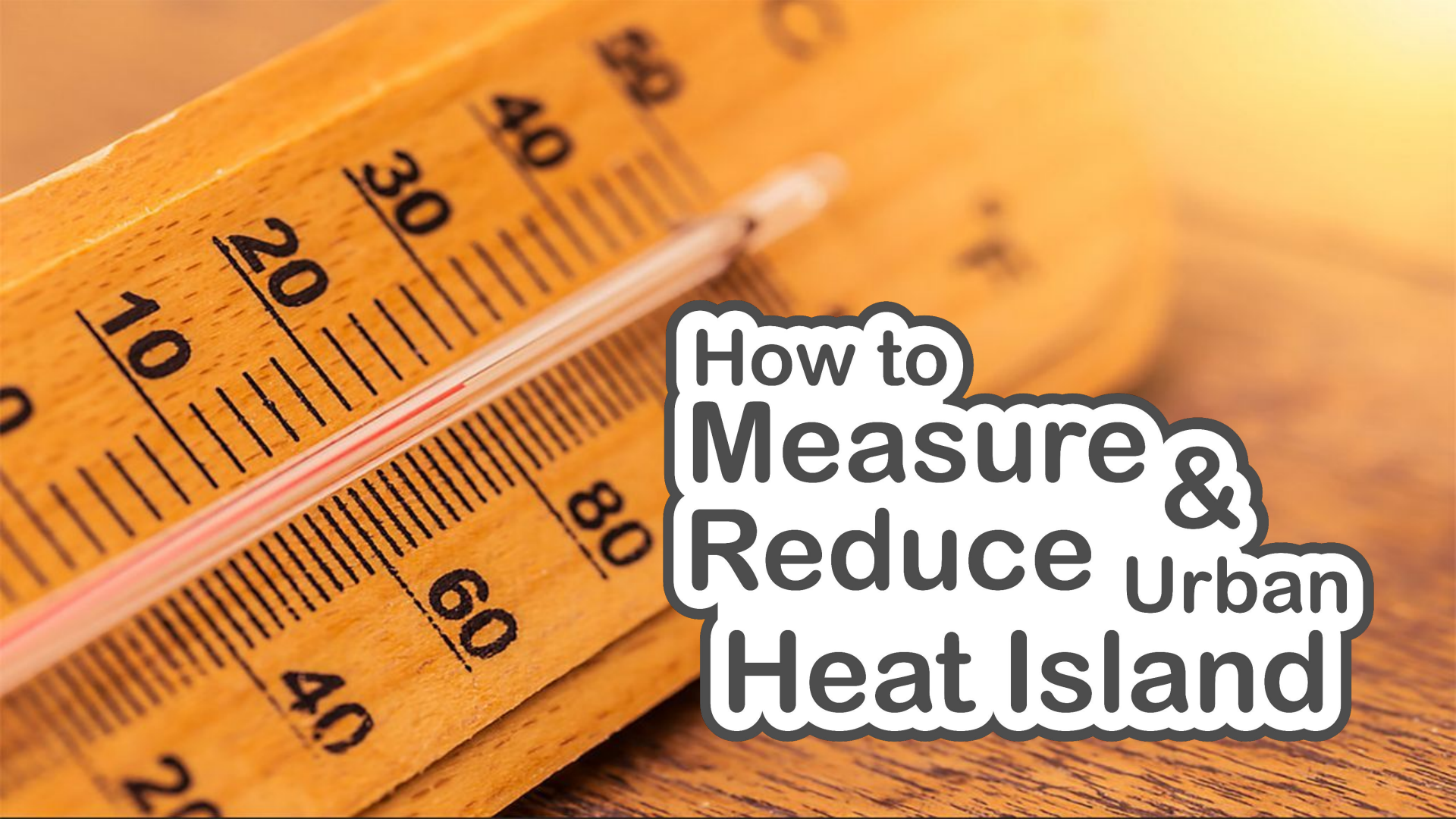
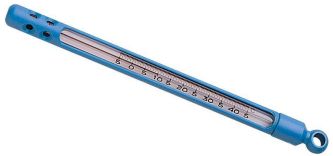

How to
Measure & Reduce Urban
Heat Island

How do we know if we are experiencing the effects of an urban heat island?

How can we know for sure?

The only way to know for sure if the urban heat island effect is increasing the temperature of our surroundings is to **take temperature measurements** of different locations and compare.

Our Neighborhood Science kit has two different thermometers to measure air and surface temperatures.

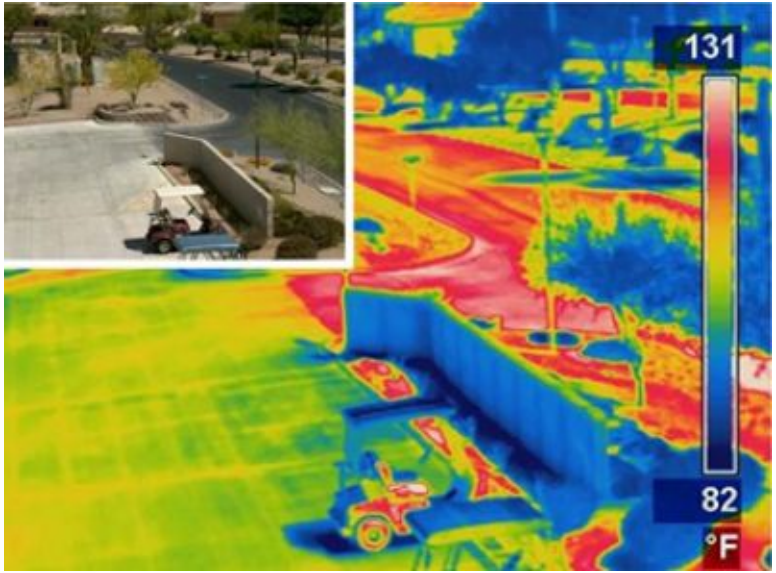


The **pocket thermometer** will measure air temperatures of urban microclimates. It will take 3-4 minutes to register.

The **infrared (IR) thermometer** can be used to take instant measurements of surface temperatures. This can be used to identify causes of the UHI.

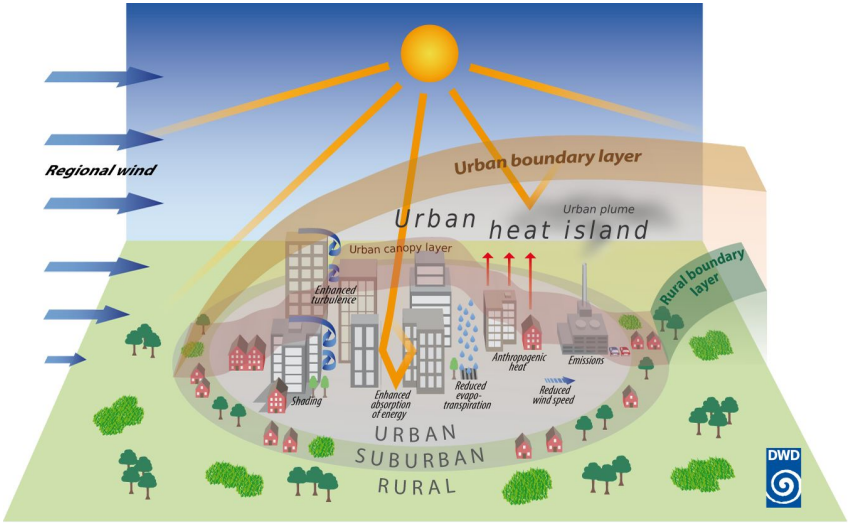
You will want to record your temperature measurements of both the air and the surfaces. It will be important to take measurements of different locations and different surfaces at different times of the day. The variety will create the best picture of the effects of urban heat island. **Direct sun exposure** versus **shade** will have a large impact on your measurements and should be noted.

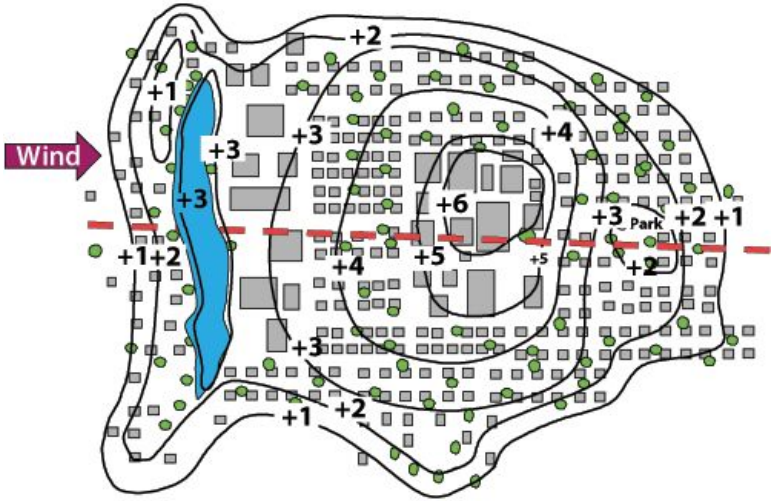
Comparing your air temperature readings to reported temperatures of your city can provide you with the potential difference in temperature due to factors of your environment such as **building materials**.



Using the IR thermometer in direct sun, shade, and at night (right after the sun sets) can show which urban surfaces are **absorbing**, **storing**, and **emitting** heat from the sun. Note this in your observations.

Wind has the ability to reduce the effects of urban heat island by blowing static warm air away from islands of hot pockets. It can also cool surfaces warmed by the sun. Therefore, you should note the wind conditions when recording temperatures. Days with no wind are often the worst UHI days.





How can we reduce the effects of Urban Heat Island?

Increase vegetation Planting more trees, shrubs, and other vegetation can help to shade buildings and pavement, reducing the absorption of heat and the emission of heat by urban surfaces. Green roofs and walls can also be used to reduce the amount of heat absorbed by buildings.

Use cool materials Using materials that reflect sunlight and absorb less heat, such as cool roofs (light colors) and pavement (painting the road white), can help to reduce the temperature of surfaces.

Reduce energy use Reducing energy use can lower the amount of heat generated by buildings and transportation. This can be achieved by using energy-efficient technologies and practices, such as efficient lighting and cooling systems, and promoting the use of renewable energy sources.

What changes can you make in your day to reduce UHI effect?

What changes can your city make?