## Humidity and heat

When describing a hot climate, people sometimes say, "But it was dry heat." Dry heat is when the humidity of the day is less than 40%. Wet heat is when the humidity is higher than 40%. Why should that make a difference?

1. Why might you feel a difference between dry heat and wet heat?

There have been some incredibly high temperatures in parts of the United States and the world lately. Forecasters talk about the day's *Heat Index*. What is that?

A measure that takes into account the temperature of a hot day **and** its humidity is called the *Heat Index*.

2. From looking at the National Oceanic and Atmospheric Administration's chart below (NOAA), what do you think heat index is?

	NWS	He	at Ir	ndex		Temperature (°F)											
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
ty (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
Humidity	60	82	84	88	91	95	100	105	110	116	123	129	137				
트	65	82	85	89	93	98	103	108	114	121	128	136					
	70	83	86	90	95	100	105	112	119	126	134						
Relative	75	84	88	92	97	103	109	116	124	132							
	80	84	89	94	100	106	113	121	129								
	85	85	90	96	102	110	117	126	135								
	90	86	91	98	105	113	122	131								nc	IRR
	95	86	93	100	108	117	127										
	100	87	95	103	112	121	132										THE STATE OF THE S
				Likelil	nood of	Heat D	isorde	rs with	Prolon	ged Ex	posure	or Stre	nuous	Activity	/		
	Caution						Extreme Caution				Dan	ger	<b>E</b>	xtreme	Danger		

- 3. If the temperature is 80° F and it's very humid (let's say 75%), according to the chart above, what does the temperature actually feel like?
- 4. If it is 100° F and the humidity is pretty low (40%), what does the temperature feel like?
- 5. If it is pretty hot out (let's say 92° F) what is the range of heat index temperatures that you might feel as the humidity varies?
- 6. What might the temperature and humidity be if you feel like it is 136° F?
- 7. Do you think that in a very dry place (like Death Valley) 100° F would just feel like 100° F?

- 8. How do you think the process of human sweat relates to these numbers?
- 9. What are some other ways to stay cool without air conditioning when its hot?

Sweating is called *Evaporative Cooling*. There are devices, both home-made and available to buy, called evaporative coolers. They do a good job.

Here is a small hand-held fan attached to a spritzing bottle:

- 10. Why might adding water and a breeze cool you down instead of increasing the humidity and make you hotter?
- 11. Have you ever seen or used one of these evaporative cooling devices? Please explain.







12. Which kind of cooler; evaporative or air conditioning, do you think uses more energy? Do a little research and find out.

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