

# Keep Texas Wild



## WEATHER WATCH!

What happens here gets started in the troposphere.

### » DAMAGE DOERS

**DON'T BLAME ALIENS FOR OUR CRAZY TEXAS WEATHER!** Blame constantly changing air pressure. When air from outer space presses on Earth, it causes wacky things to happen. Earth's atmosphere has five layers between outer space and us. Weather gets made in the bottom layer, the one closest to us, called the troposphere. When pressure in the troposphere changes, it forces air to move. In official weather words, we say that the air moves from places of "high pressure" to places of "low pressure." This gets the weather-making started, but air pressure doesn't do all the work by itself. Wind, temperature and precipitation also help create weather in the troposphere.

PHOTO © ROLF NUSSBAUMER/ROLFINPCOM

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# WHAT'S UP WITH TEXAS WEATHER?

## Precipitation

Wet stuff, like rain, is precipitation.

CHECK OUT THESE WET WEATHER WORDS:

**HAIL:** When chunks of ice fall from the sky, we call them "hail." Yikes! Run for cover!

**SNOW:** One single snowflake contains two to 200 ice crystals!

**SLEET:** Imagine something that feels like snow and rain mixed and you've got a mushy mess called "sleet."

**DEW:** Ever notice wet grass even when it didn't rain? When moisture in the air gets too heavy, it settles to the ground as "dew."

MEASURING PRECIPITATION: We use a rain gauge to find out how much moisture fell.



## Air Pressure

Tiny invisible particles called "air molecules" always fill the air. Even right now! Sometimes, molecules have lots of space between them in the air. Other times, they don't.



When air molecules have a lot of space between them, the pressure is low. When they have little space between them, the pressure is high. Measuring air pressure: We use barometers to measure air pressure and to find out if the weather will change soon.

# BAM! BOOM! BANG!

Many dramatic storms come to Texas each year.

## TORNADOES

The Texas Panhandle has a reputation for crazy twisters. Tornadoes begin when warm air gets pushed upward, carrying water droplets with it. As the air spins, it makes a vortex. Tornadoes can spin up to 300 mph! Whoa ... are you dizzy yet?

Storm safety tip: One of the safest places to wait out a tornado is curled up in your dry, empty bathtub.

## CLIMATE vs. WEATHER

Don't get climate confused with weather! Climate describes patterns of weather over a long time. Weather describes what's happening right now.



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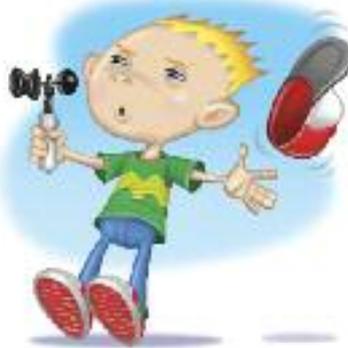
## Wind

When air pressure and temperatures change, wind gets created ... WHOOSH. Then, when wind gets made ... WHOOSH ... it causes air pressure and temperatures to change. Do you see the relationships?

**MEASURING WIND:** We use an “anemometer” (an-eh-mom-eh-tor) to measure how many miles per hour wind blows.

**NORTHERS ... SPECIAL TEXAS WINDS!**

Remember a time when it suddenly turned cold?! Wasn't that weird!?! A norther had arrived! A mass of cold air from the north can drop Texas temperatures lickety split! Brrrrr!!!



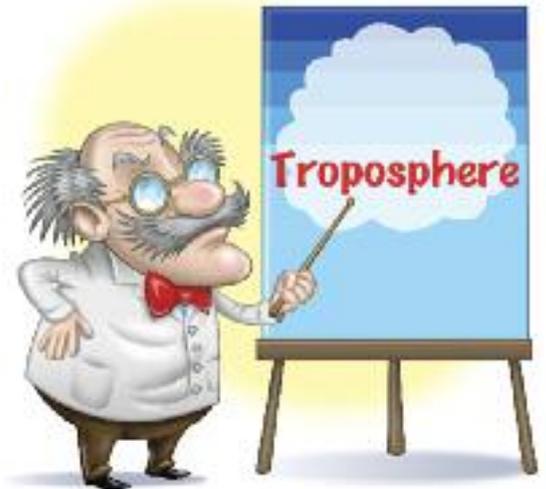
## Troposphere

All Texas weather — actually, all Earth's weather — gets started here. The troposphere is just one of the five layers between us and outer space, but at 5 to 11 miles thick it equals about half our atmosphere.



## Temperature

Since Texas lies pretty close to the equator, our temperatures tend to be warmer than many other places in the United States. Measuring temperature: We use thermometers with the metric system (Celsius degrees) or the customary system (Fahrenheit degrees) to measure temperature.



ILLUSTRATIONS © FIAN ARROYO

## THUNDER & LIGHTNING

Thunderclouds have frozen raindrops and warm air that move around bumping into one another. That creates electricity that we see as lightning.

Lightning makes thunder. As lightning travels, it makes a super-loud noise. We see lightning before we hear thunder because light travels faster than sound.

**Storm safety tip:** Since lightning is electricity and electricity is attracted to water, stay away from water during a lightning storm!

## HURRICANES

These mighty storms brew over oceans, and since Texas rests against the Gulf of Mexico, we sometimes get visited by their fury. When hurricanes reach land, their winds can blow over 100 mph!

Today, weather tools like radar warn us when hurricanes head our way. Meteorologists like Paul Yura alert us so we have time to evacuate. “Evacuate” means leave and go somewhere safe.

**Storm safety tip:** Listen to the advice of meteorologists and evacuate when they tell you to do so!

## MEET A METEOROLOGIST

PAUL YURA WITH THE NATIONAL WEATHER SERVICE

**Q: What does a meteorologist do?**

**A:** Some meteorologists study the weather so we can learn more about hurricanes, tornadoes and lightning. Other meteorologists forecast the weather.



**Q: Do you have any storm safety tips?**

**A:** Please be safe during bad weather and go inside. We say, “When thunder roars, go indoors!” And after a lot of rain, don't go and play in the flooded creeks and streams.

**Q: Were you ever afraid of storms when you were a kid?**

**A:** Of course I was afraid of weather, especially loud thunder! To this day it still scares me, but now I respect its power and know how to stay safe from all types of storms.



# Spike's Activity Page



## >> KEEPING IT WILD

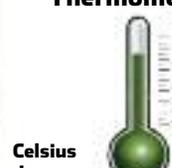
**INSTEAD OF BEING SCARED OF STORMS, be prepared! Create a Wild Weather Action Plan that includes:**

- A plan for where you and the rest of your family will meet up if you get separated during bad weather.
- A plan for what you should do during bad weather, including what to do if the electricity goes out.
- A plan for what to do if someone needs medical care during a bad storm.
- You may never need to use your Wild Weather Action Plan, but at least you'll be ready just in case!



## >> WILD MATH

READ THESE WEATHER INSTRUMENTS and record the data they show. Then, circle which system of measurement each one uses.

| INSTRUMENT   | DATA | SYSTEM OF MEASUREMENT   |
|--|------|-------------------------|
| <b>Thermometer °F</b><br><br>Fahrenheit degrees |      | METRIC<br><br>CUSTOMARY |
| <b>Thermometer °C</b><br><br>Celsius degrees    |      | METRIC<br><br>CUSTOMARY |
| <b>Barometer</b><br><br>Inches                 |      | METRIC<br><br>CUSTOMARY |
| <b>Rain Gauge</b><br><br>Milliliters          |      | METRIC<br><br>CUSTOMARY |

## >> WILD SCIENCE

**Create Your Own Tornado!**

- 1) Remove labels and lids from two plastic soda bottles (half-liter or liter size). Fill one bottle three-fourths full.
- 2) Place duct tape over the openings of both bottles. Poke a hole in very center of each bottle opening as big as the diameter of a pencil.
- 3) Put the empty bottle on top so that its opening lines up with the other bottle's opening. Tape it in place with duct tape.
- 4) Get ready, set and ... go! Quickly flip the bottles over and watch a vortex form as the water swirls down. [HINT: Try poking a hole in the bottom of the bottle with water to get your vortex started.]
- 5) Watch the "tornado" you've created: In which direction does your vortex move? How is it different in the middle than at the edges?



**NEXT MONTH:  
Who Killed Freddy Fish?**

### TEACHER RESOURCE

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