

Module E

Unit 2

Lesson 1

Exploration 1

Describing Weather

Do now:



1. Unit 2 Lesson starter on Student eBook



Do now: Left side page

1. Finish Friday's Left side page

What is the weather like right now?

What is your favorite type of weather?

What is your least favorite type of weather?

Up next

Types of weather we won't study, but are really neat.



3 WHACK WEATHER PHENOMENA

Sci Show



Unit 2 Lesson 1

Influences on Weather

Objectives:

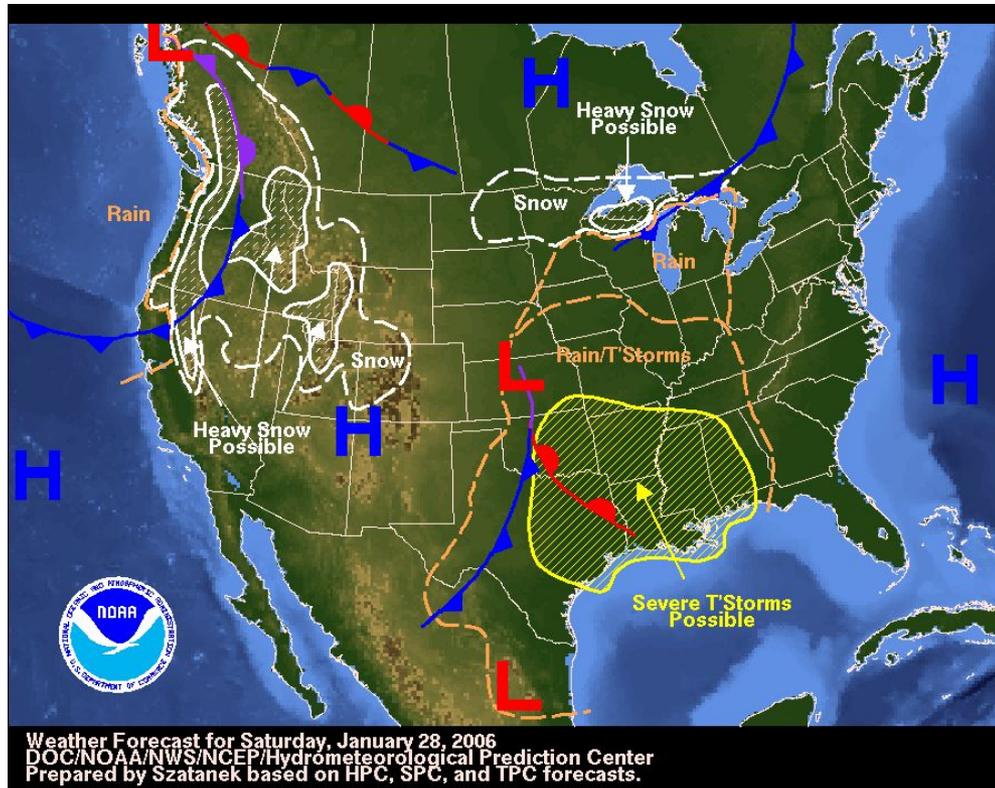
Explore various elements of weather

Cause and effect relationships that work together to influence weather

Study how weather is influenced by interactions involving the atmosphere, temperature, precipitation, air pressure and wind

Weather

Weather is the present state of the atmosphere. Weather is short term



What Causes Weather?

The interaction of air, water, and the sun causes weather. What factors determine what the weather is going to be like?

What factors influence weather?

1. Temperature

2. Humidity

3. *Clouds & precipitation*

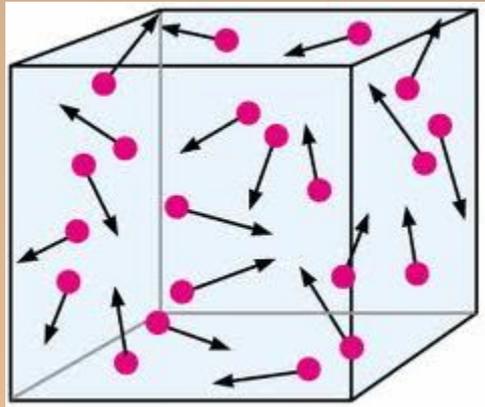
4. Air pressure

5. Wind



1. Air Temperature

- Air is made up of randomly moving molecules
- Temperature is a measure of the average amount of motion by the molecules
- High motion = High Temperature
- Low motion = Low Temperature



2. Humidity

is the amount of water vapor in the air.

TOO DRY

LESS THAN

15%

HUMIDITY



You may notice you're getting zapped by door-knobs and light switches.



A humidifier will help increase humidity.

TOO HUMID

GREATER THAN

50%

HUMIDITY



You may notice that your hair is frizzier than usual.



Air conditioning will help lower humidity.

Humidity vs. Relative Humidity

Relative humidity refers to the amount of water vapor the air is holding compared to the amount it can hold at a temperature.

*****The warmer the temperature, the more water the air can hold.*****

BUT WHY

DO I

CARE?

A cityscape at sunset with a text overlay. The sky is a mix of orange, red, and purple. The city buildings are silhouetted against the bright sun. In the foreground, there are palm trees and a hillside. The text is overlaid on a dark blue rectangular box on the right side of the image.

WHY
HUMIDITY
MAKES IT FEEL SO
HOT

Sci *Plus*

Condensation

The air can only hold a certain amount of water vapor, so when the air is fully saturated condensation will occur. This is called the **dew point**. The dew point will change with the amount of moisture in the air.



Dew

Frost





3. Clouds and Precipitation

Clouds

Clouds form when water vapor in the air condenses around a particle of dust or salt. These particles are known as nuclei. When millions of these droplets collect, a cloud forms.

Cloud Classification

Clouds are classified into three main types based on their shape.

Stratus

Cumulus

Cirrus

3 STRANGE LOOKING KINDS OF CLOUDS



(THIS IS NOT ONE OF THEM)

SciShow

Stratus

Stratus clouds form in flat layers. They look like smooth even sheets at low altitudes. They can be seen in fair weather, but they can also thicken and bring drizzle.



fog.

Cumulus

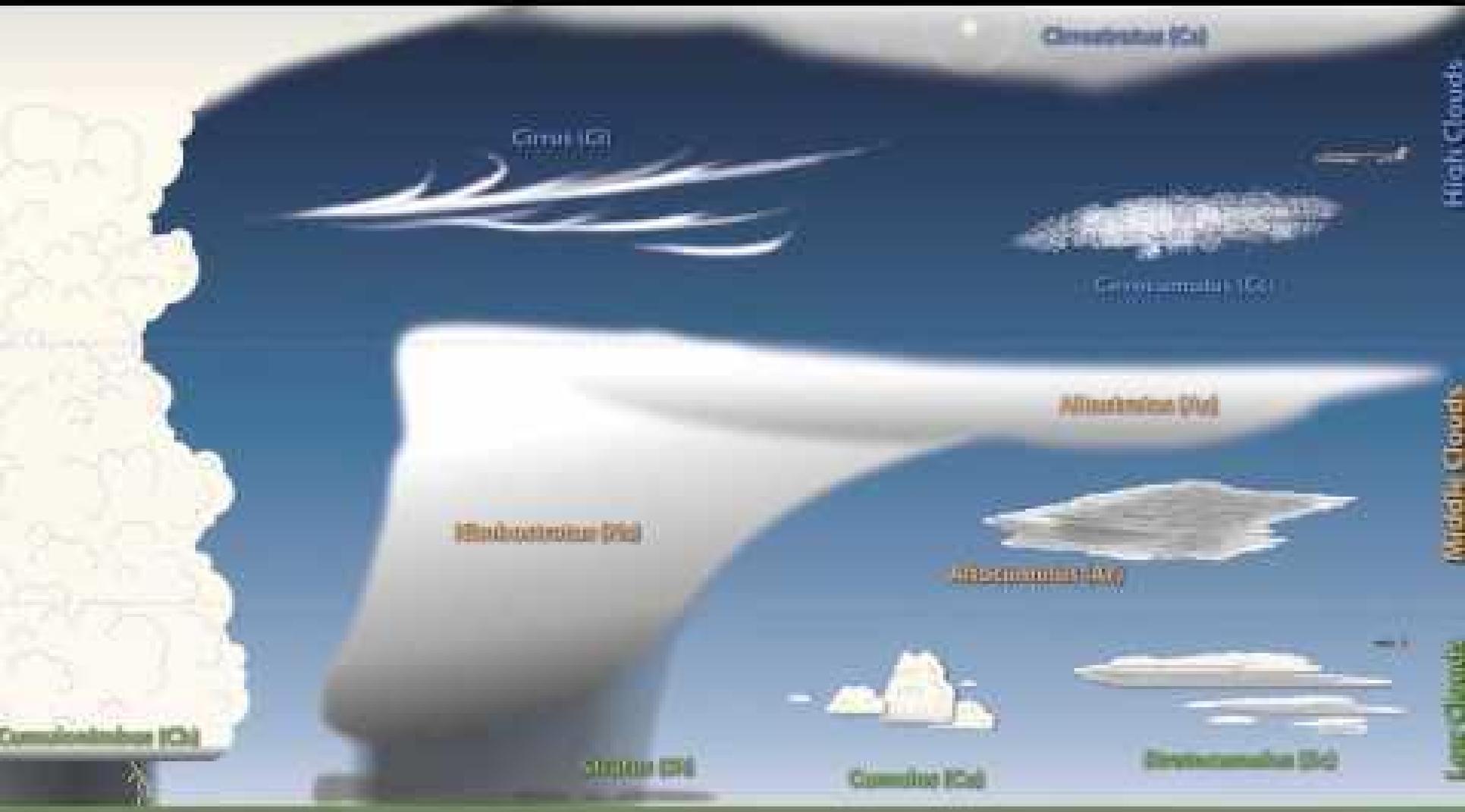
Cumulus clouds look like fluffy, rounded piles of cotton. They are usually associated with fair weather when they are small. Larger ones are called **nimbus** or **cumulonimbus** and are associated with thunderstorms.



Cirrus Cirrus Cirrus

Cirrus clouds are found at high altitudes and because of their height, are made of ice crystals. They are thin and feathery. They usually indicate that the weather is changing.





Cirrus (Ci)

Cirrus (Ci)

Cirrocumulus (Cc)

Nimbostratus (Ns)

Altostratus (As)

Nimbostratus (Ns)

Stratus (St)

Cumulus (Cu)

Stratocumulus (Sc)

Cumulonimbus (Cb)

High Clouds

Middle Clouds

Low Clouds

Stratus clouds are sheets of gray,
sheets of gray, sheets of gray.

Stratus clouds are sheets of gray,
they hang low in the sky.

Precipitation

Water falling from clouds is called precipitation. The air temperature determines what type of precipitation will occur.

Rain – if the temperature is above freezing

Snow –if the temperature is below freezing

Sleet – if snow passes through a layer of warm air and then refreezes

Hail – forms high in the atmosphere and gathers layers as it falls





Sound of the drums
Beats in my heart
The thunder of guns!
From the speed
You've been - thunderstruck!
Rock across the highway
Break the limit, we hit the top
We'll struggle to Texas, great Texas





StormChasingVideo.com



Prevailing Westerlies, blow the air

From west to east they, come again

Polar easterlies, from the east

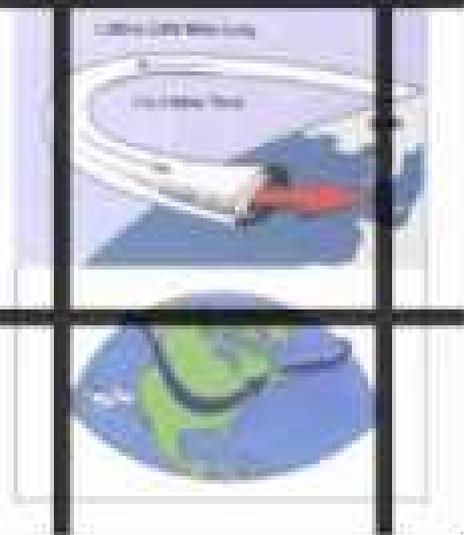
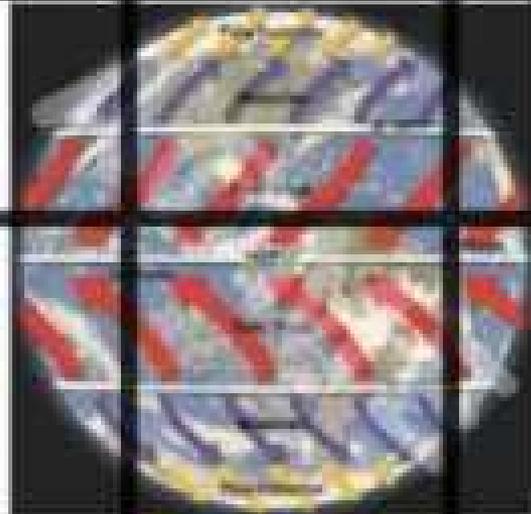
Away from poles, it blows away from poles

And the bands of high winds, called jet streams

Wander north and south, on a path

Mostly moving, west to east

Aiding planes, on cruise control

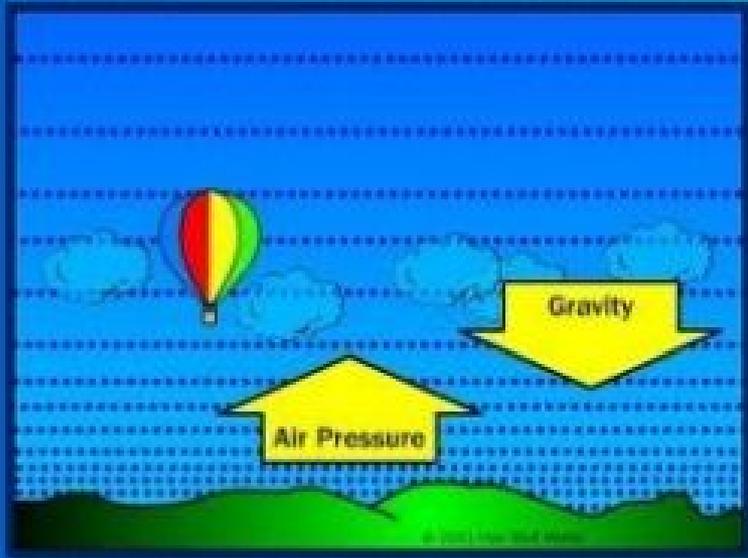


HOW TO MAKE SNOW

Sci Show



What is Air Pressure?



The air pressure on any one object on Earth depends on how much air exists above that object

- It is caused by the weight of all the air in the atmosphere pressing down on Earth.
- Air pressure changes with the height and also when air warms up or cools down.
- Changes in air pressure cause changes in the weather.

Copy your
version of the
next slide onto a
left side page.

Factors Affecting Air Pressure

FACTOR	Increase/Decrease	Air Pressure
Density		
Density		
Temperature		
Temperature		
Water Vapor		
Water Vapor		
Altitude		
Altitude		



Do now:

1. Air Pressure Lab with plastic cups
index card and water

5. Wind

- It is a result of air moving from high to low pressure regions.
- Warm air rises and cold air sinks
- Wind is measured with a **Anemometer**
- **(Ann-E-mom-eater)**



Do now:

1. Complete Blue textbook page 79 #1 as a right side page
2. Complete Blue textbook page 79 #2 as a left side page with color

Do now:

1. Answer Online Student Textbook Questions under Air Pressure and Wind
2. Complete Language Smarts

Think about the storm that swept over the town in Utah. How did the clouds and snow form? Record as a Left side page in Evidence ISN



Do now:

1. **Influences on Weather: Lesson
Self-Check**
 - a. **Students must go to Student ebook
Module E practice and review**