# Geography CBA 1

BY LUCY BRETT

# *2011 Joplin Tornado*

# When?

- The Joplin Tornado happened on 22 of May 2011.
- It started at 5:34pm and lasted 38 minutes.
- It took over three years to recover from the damages.

# Where?

- The Joplin tornado took place in Joplin, Missouri, USA.
- It made its way through nearly one-third of Joplin city limits.
- It covered 22 miles of ground in Jasper and Newton counties.

# *Joplin Missouri*

# Who?

- The Joplin tornado killed 161 people and injured over 1,300 people.
- There were 20,000 buildings left without power.
- It destroyed 4,000 buildings and damaged 8,000.
- A large church, a nursing home, Franklin Technology Centre, St. Mary's Catholic Church and School, and Joplin High School were all destroyed. The Greenbriar Nursing Home was completely destroyed, with 21 fatalities occurring there alone.

# What?

- The Joplin 2011 tornado was caused by warm air coming up from the gulf of Mexico colliding with the cool air coming from the Rocky mountains. This forms  a tornado.
- The Joplin tornado rated an EF5 on the Enhanced Fujita Scale

# Why?

- The Joplin tornado is significant as it is the costliest tornados ever recorded in the U.S. Causing over $3.37billion worth of damage.
- It has the sixth highest amount of deaths ever recorded in the U.S for tornadoes.


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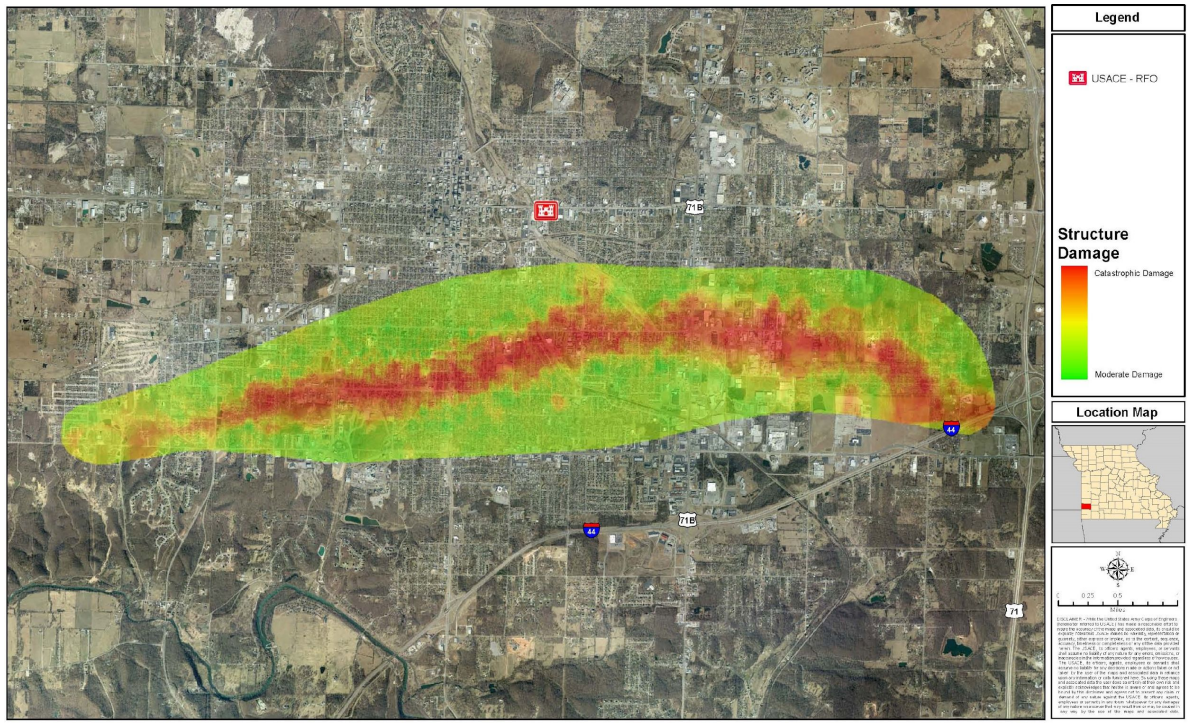
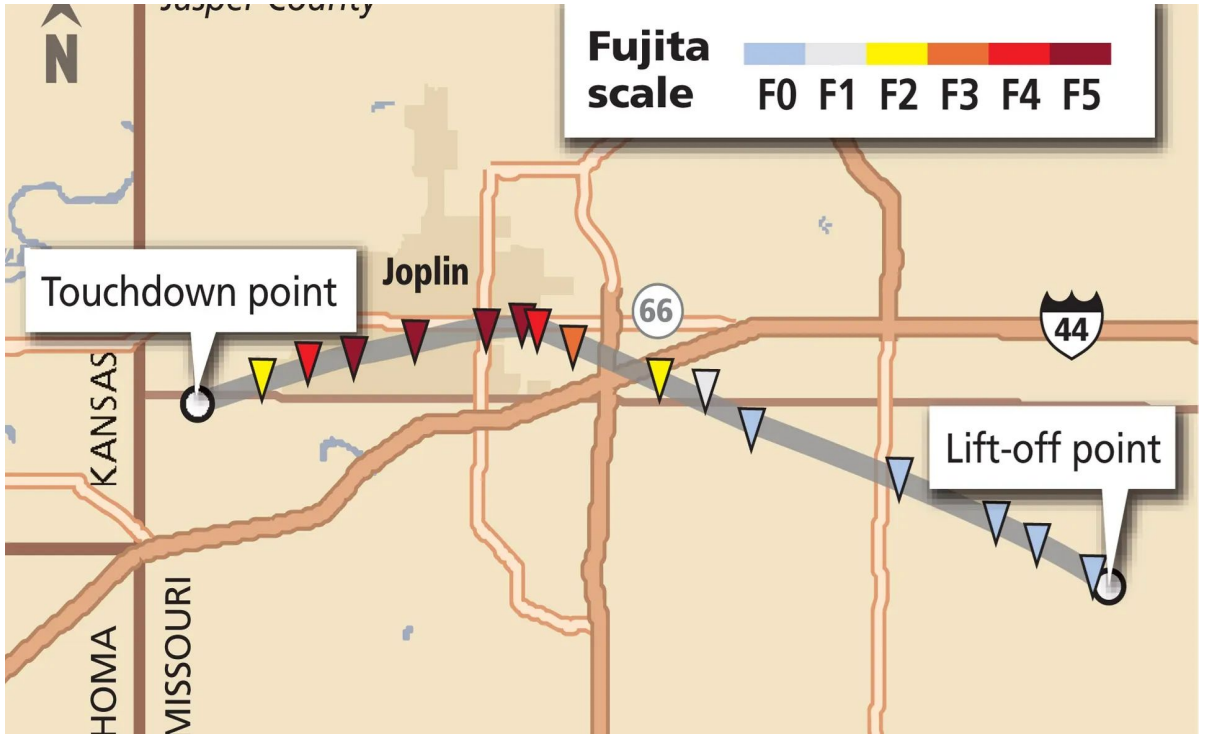
# The path the tornado took through Joplin



# *Short term effects*

- Joplin damaged over 8,000 buildings, it displaced thousands of people from their homes.
- Many schools and childcare facilities were damaged
- The loss of animal homes and trees and plants being uprooted separated animals from their habitats.
- There was a scarcity of food as damage was done to provision stores retail shops and warehouses where farm harvests were stored.

# Long term effects

## Financial

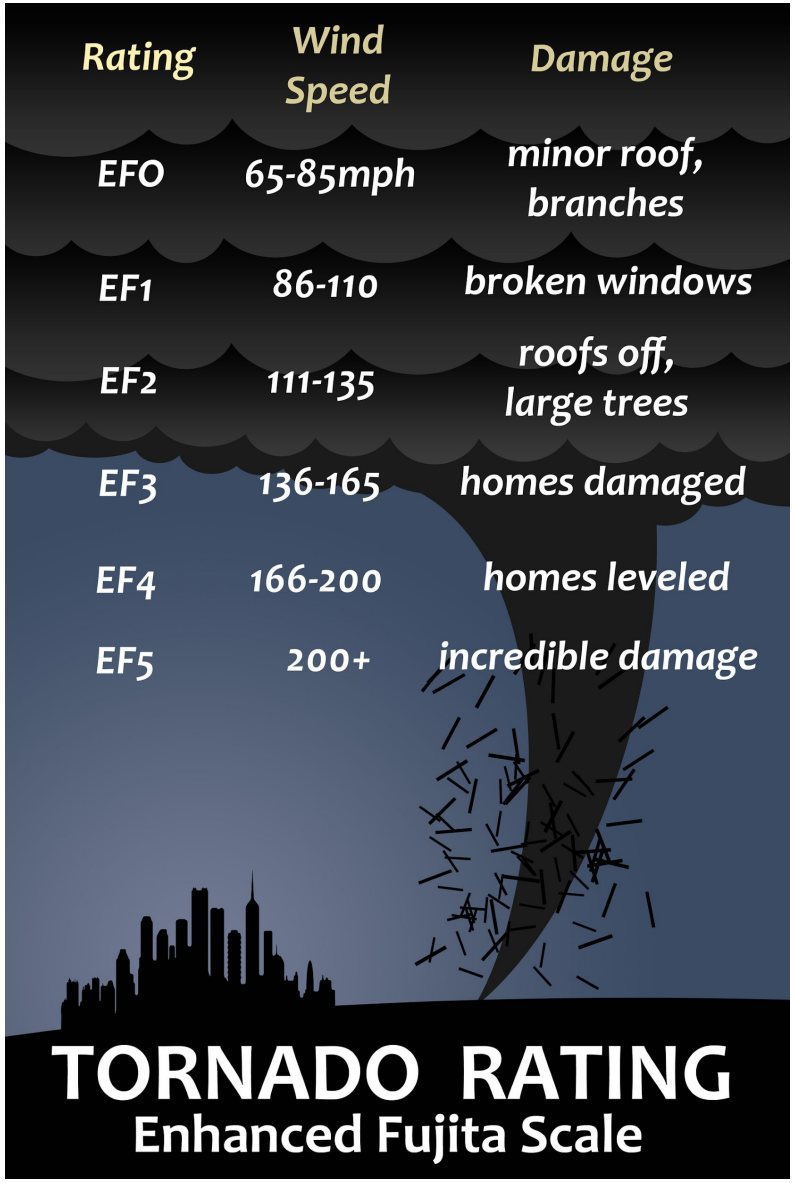
- Between the months of April and November of 2011, killer tornadoes in the United States caused an estimated $23 billion ($3.75billion for Joplin alone) in damage. A tornado can destroy an entire house in just a few seconds leaving a family homeless and financially stressed, sometimes for life.

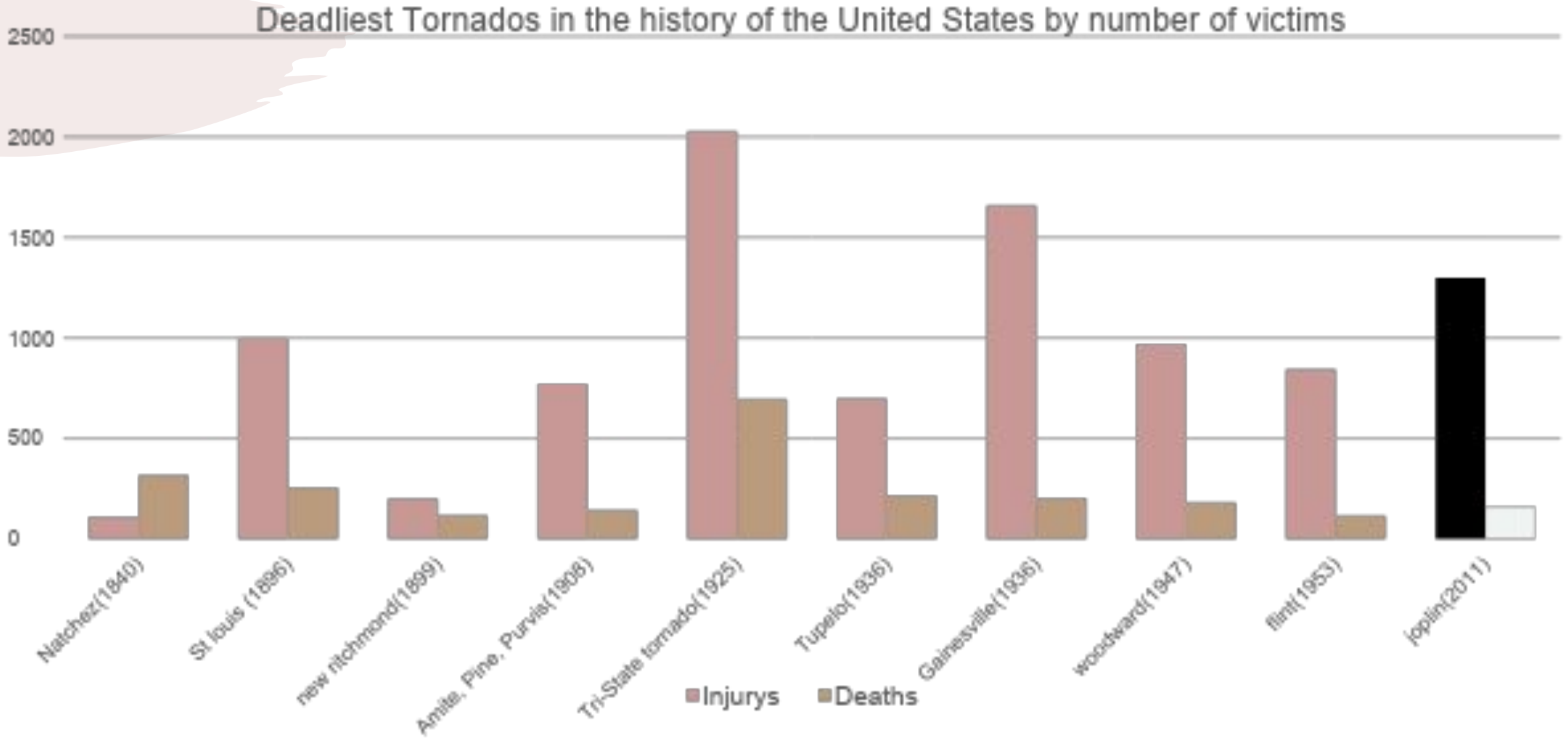
## Environmental

- When the tornado hit Joplin it destroyed buildings, rupturing pipelines and broke chemical containers which contaminated groundwater with raw sewage, oil and other pollutants. Other wastes, such as household chemicals and medical wastes, were widely disbursed, contaminating the environment.

# Enhanced Fujita Scale

- The Enhanced Fujita Scale which rates tornado intensity is based on the amount of damage the tornado causes. It is used in some countries, including the United states, Canada and China.
- A tornado is rated in one of six categories (F0, F1, F2, F3, F4 or F5) on this scale. The weakest tornado is an F0 and the strongest is an F5. It was developed in 1971 by Mr Tetsuya Fujita, with support from Mr Allen Pearson. In 1973 the Fujita Scale was updated to include the width of a tornado and the distance it travels.




Deadliest Tornados in the history of the United States by number of victims
2500
2000
1500
1000
500
0
Natchez(1840)
St louis (1896)
new ritchmond(1899)
Amite, Pine, Purvis(1908)
Tri-State tornado(1925)
Tupelo(1936)
Gainesville(1936)
woodward(1947)
flint(1953)
joplin(2011)
Injurys
Deaths

# Characteristics of a Tornado

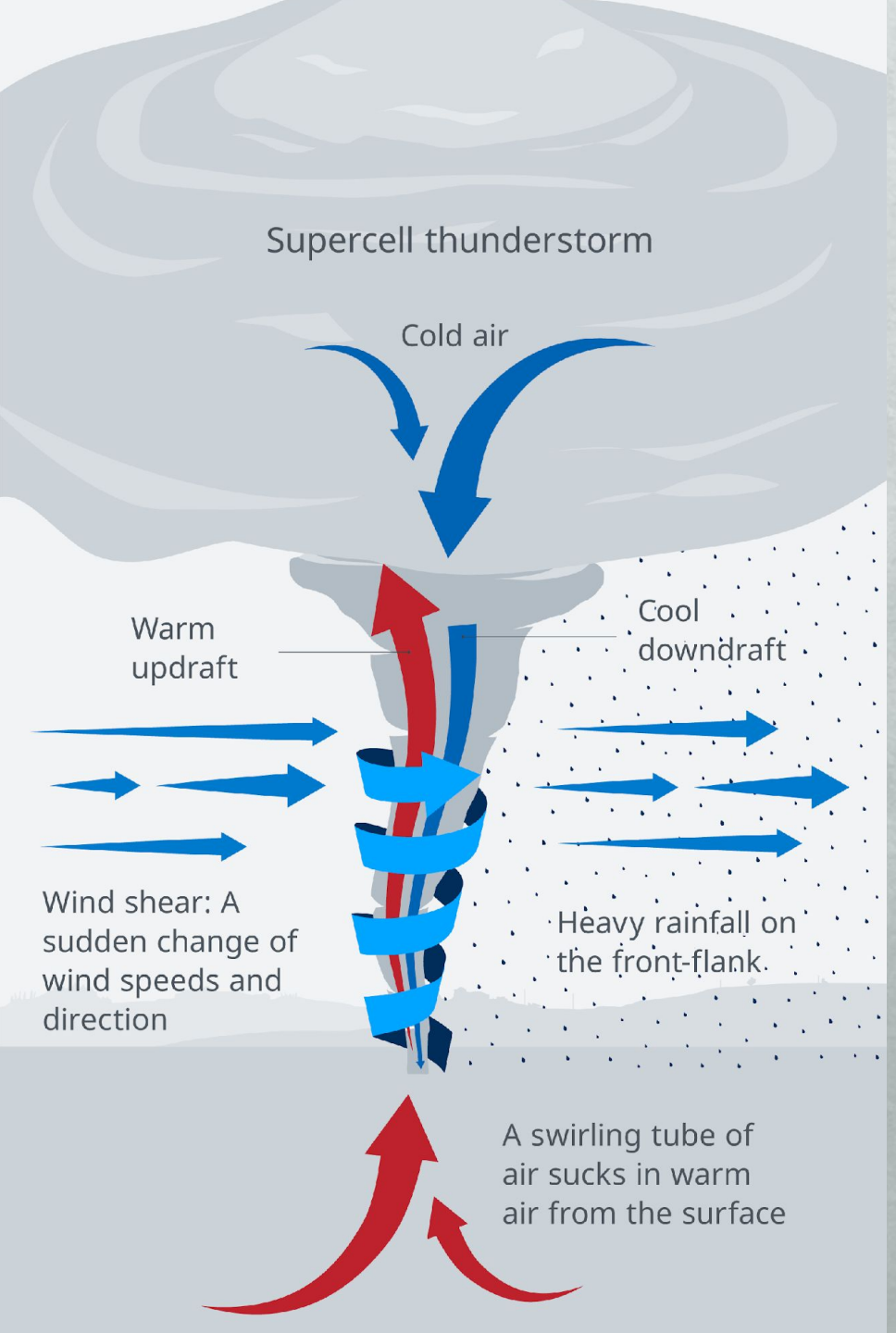
- Shape - Tornadoes typically look like a narrow funnel.
- Size - Tornadoes can vary widely in size. A typical tornado in the United States is around 150 meters across, but some may be as narrow as just a few meters.
- Wind Speed - The wind speed of a tornado can vary from 65 to 250 miles per hour.
- Color - Tornadoes may appear different colors depending on the local environment. Some may be nearly invisible, while others may appear white, gray, black or even green.
- Rotation - When viewed from above, most tornadoes rotate counterclockwise in the northern hemisphere and clockwise in the southern hemisphere.

# Tornado Facts

- Other names for tornado include twister, cyclone, and funnel.
- For a vortex of wind to be officially called a tornado it must touch the ground.
- More tornadoes touch down in the United States than any other country, over 1,000 per year.
- The fastest winds on Earth occur inside tornadoes.
- The average tornado travels at a speed of 30 miles per hour, but some can move at speeds of up to 70 miles per hour.

# What is a tornado?

- A tornado is a narrow, violently rotating column of air that extends from a thunderstorm to the ground. Because wind is invisible, it is hard to see a tornado unless it forms a condensation funnel made up of water droplets, dust and debris.
- Tornadoes can be among the most violent phenomena of all atmospheric storms we experience.
- Tornadoes are one of the most violent and powerful types of weather. They can be very dangerous as their high speed winds can break apart buildings, knock down trees, and even toss cars into the air.




# How do tornados form?

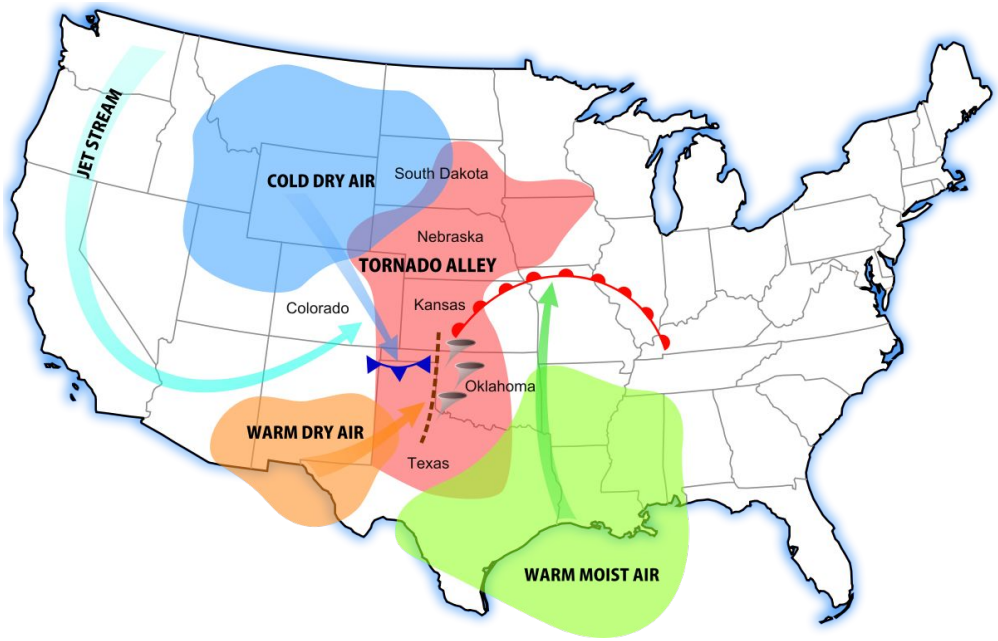
- A tornado forms from a large thunderstorm.
- Inside thunderclouds, warm, humid air rises, while cool air falls--along with rain or hail. These conditions can cause spinning air currents inside the cloud.
- Although the spinning currents start out horizontal, they can turn vertical and drop down from the cloud--becoming a tornado.

# Where is Tornado Alley?

- Tornado Alley is a nickname invented by the media to refer to a broad area of relatively high tornado occurrence in the central United States. Various "Tornado Alley" maps can look different because tornado occurrence can be measured many ways: by all tornadoes, tornado county-segments, strong and violent tornadoes only, and databases with different time periods.

# *How do tornados form in Tornado alley?*

- In this area, known as Tornado Alley, storms are caused when dry cold air moving south from Canada meets warm moist air traveling north from the Gulf of Mexico. Tornadoes can form at any time of year, but most occur in the spring and summer months along with thunderstorms.



# Why I chose this topic

Why I chose this topic:

- I chose this topic when I was watching a programme on RTE about tornadoes. The Meteorologists were explaining about the frequency of tornados in the region known as ‘tornado alley’ in the USA, therefore I chose one of the largest tornado that happened during my life and decided to do my CBA on it.

Reflection:

- If I was to do this project again I would chose a different topic other than tornados as there was little to no information in my text book and there wasn't a lot of information online either.

# Appendix


- https://slideplayer.com/slide/4797610/
- https://www.ipl.org/essay/Joplin-Tornado-Case-Study-FCNLA47UYV
- https://www.nationalgeographic.com/environment/article/tornadoes
- https://www.joplinmo.org/DocumentCenter/View/1985/Joplin_Tornado_factsheet?bidId=
- https://www.sandiegouniontribune.com/sdut-environmental-hazards-remain-after-joplin-tornado-2011may31-story.html
- https://www.nytimes.com/2011/05/23/us/23tornado.html
- https://www.washingtonpost.com/business/2021/12/19/joplin-tornado-lessons/
- https://www.youtube.com/watch?v=EBWkd6xTyq4