

TORNADOES IN THE U.S.A.

warm up

pre-search

search



multimedial
product

class report

self-assessment
grid

1st STEP: WARM UP!

Match the videos and their descriptions

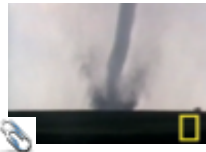
very good, folks!

B



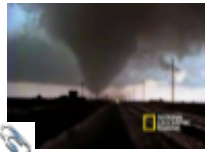
1. this video shows people laughing and playing in a gentle **vortex**

C



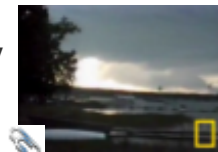
2. this video shows the **energy** of a tornado with cows fleeing and houses rising into the air

D



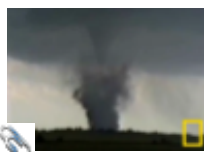
3. this video shows the catastrophic effects of a tornado and mentions the **Fujita scale**

F



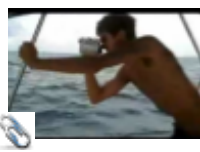
4. this video shows how curiosity is suddenly replaced by **panic**

A



5. this video shows a **tornado chaser** making a test in the **Tornado Alley**

E



6. this video shows **water-spouts**, the water-based counterpart to tornadoes

A=5 D=3

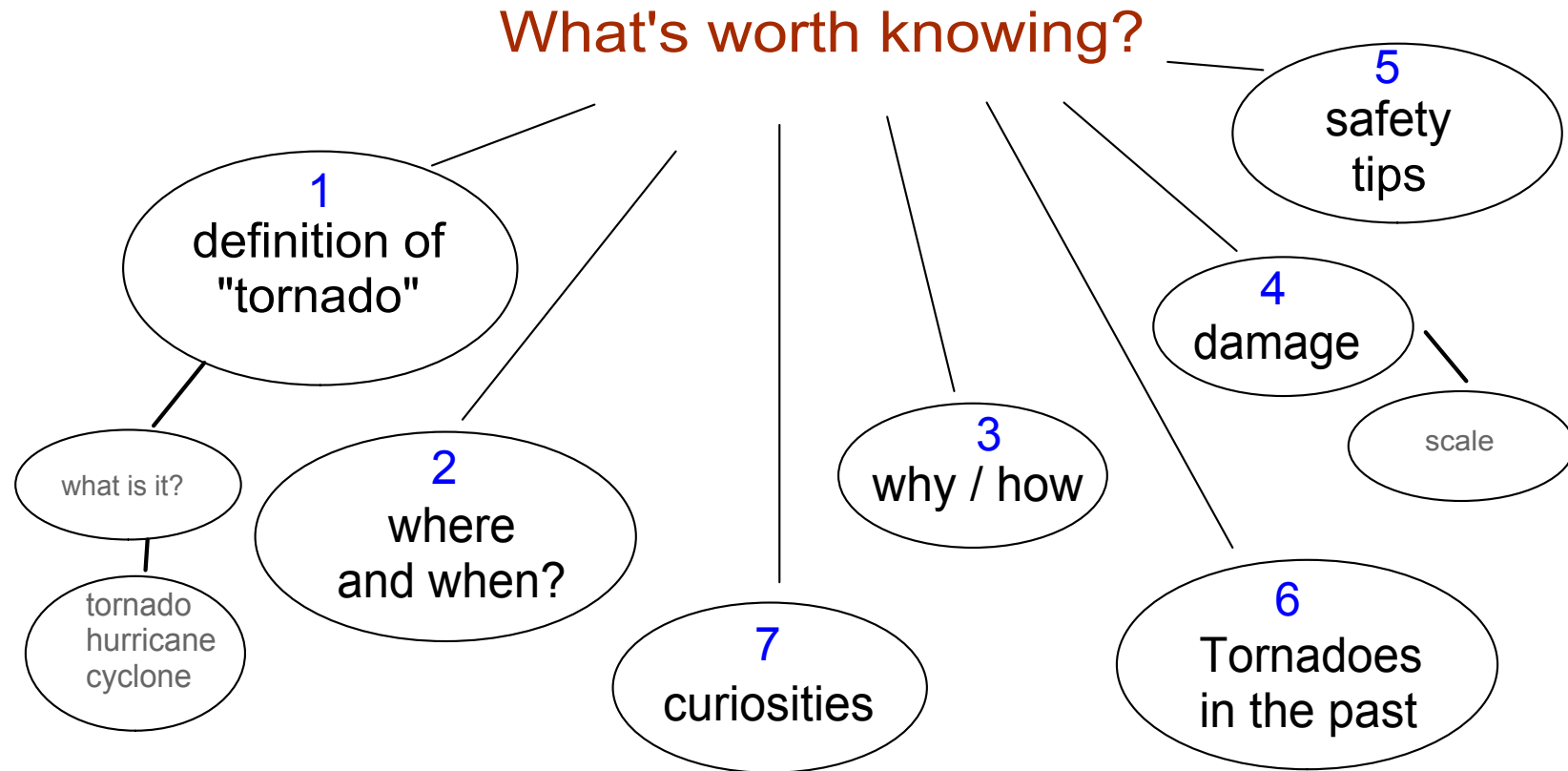
B=1 E=6

C=2 F=4

KEY



2nd STEP: LET'S GET READY FOR THE SEARCH!



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Who's my "mouse-friend"?

group 1

Redattore: Hatmir
Relatore: Matteo
Segretario: Giulia

group 2

Redattore: Greta
Relatore: Arianna
Segretario: Natalia

group 3

Redattore: Riccardo
Relatore: Luminita
Segretario: Emanuele

group 4

Redattore: Anna
Relatore: Mirko
Segretario: Federico

2nd STEP: LET'S GET READY FOR THE SEARCH!

Who does what?




group 1
1

group 2
4 - 6

group 3
2 - 3

group 4
5 - 7

3rd STEP: TREASURE HUNT ON THE WEB!

-  a text (5 -15 sentences)
-  a picture and/or video
-  an interesting web link

 remember: NO REPETITIONS!

we DO need an Internet connection, folks!

3rd STEP: TRESURE HUNT ON THE WEB!

what is a tornado?



A tornado is a violent, rotating column of air which is in contact with both the surface of the earth and a cumulonimbus cloud, and are produced by large supercell thunderstorms.

They are the most intense of all atmospheric phenomena. Tornadoes come in many shapes and sizes but are typically in the form of a visible condensation tunnel.

A cumulonimbus is a cloud that grows vertically.

A supercell is a thunderstorm that is characterized by the presence of a mesocyclone: a deep, continuously rotating updraft.



3rd STEP: TREASURE HUNT ON THE WEB!

tornado, hurricane, cyclone or typhoon ?

Hurricanes, cyclones and typhoons are the same thing (**rotating storms**) but vary in **location** and **strength**.

Hurricanes occur over the Atlantic basin and the eastern Pacific Ocean.

Cyclones occur over the Indian Ocean area.

Typhoons occur over the western Pacific.

Tornadoes are air vortices born in storms.



Hurricanes are huge storms! They can be up to 600 miles across. They bring rain and strong winds. The storm winds blow counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere. The center of the storm is the calmest part. It is called the eye.

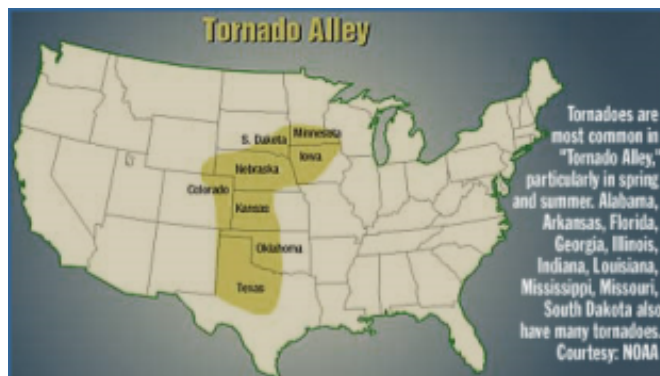
3rd STEP: TREASURE HUNT ON THE WEB!

when do they occur?

April is the deadliest month for tornadoes, but they can strike at any time of the year. Tornadoes can strike at any time of day, but are much more frequent in the afternoon and evening, after the heat of the day has produced the hot air that powers a "tornadic thunderstorm".

where?

Tornadoes have been observed on every continent except Antarctica, however, a significant percentage of the world's tornadoes occur in the United States. They are common in **Tornado Alley** because of the Rocky Mountains to the west and the Gulf of Mexico to the south. In spring a strong stream flows across the Alley, creating instability and a channel of low pressure that brings warm air from the Gulf. This situation usually generates tornadoes



But tornadoes are not limited to this region. They have occurred in all 50 U.S. states

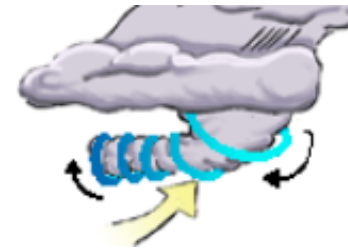
3rd STEP: TRESURE HUNT ON THE WEB!

how do tornadoes form?



- 1) One way the rotation appears to happen is when winds at two different altitudes blow at two different speeds creating a **horizontal rotating column of air**.

- 2) Changing wind speeds and wind directions can cause the air to rotate vertically. This rotating air creates a **funnel** that doesn't initially extend to the ground.



- 3) The rain and hail in the thunderstorm cause the funnel to touch down creating a **tornado**

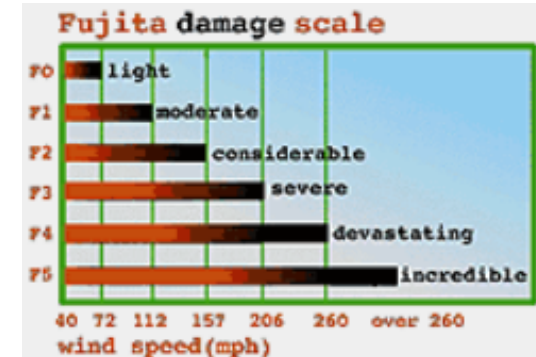
Watch the video!

3rd STEP: TRESURE HUNT ON THE WEB!

damage

Forecasters and researchers use the **Fujita Scale** to classify tornadoes.

It was developed by T. Theodore Fujita and was put into use in 1973. The scale was enhanced in 2007, with rankings running from EF (Enhanced Fujita) - 0 through 5. The ratings are based on the amount and type of **wind damage**.



MPH = MILES PER HOUR

KM/H = MPH x 1,61

- EF-0. Some damage to siding and shingles.
- EF-1. Considerable roof damage. Winds can uproot trees and overturn single-wide mobile homes. Flagpoles bend.
- EF-2. Most single-wide mobile homes destroyed. Permanent homes can shift off foundation. Flagpoles collapse. Softwood trees debarked.
- EF-3. Hardwood trees debarked. All but small portions of houses destroyed.
- EF-4. Complete destruction of well-built residences, large sections of school buildings.
- EF-5. Significant structural deformation of mid and high-rise buildings.

3rd STEP: TREASURE HUNT ON THE WEB!

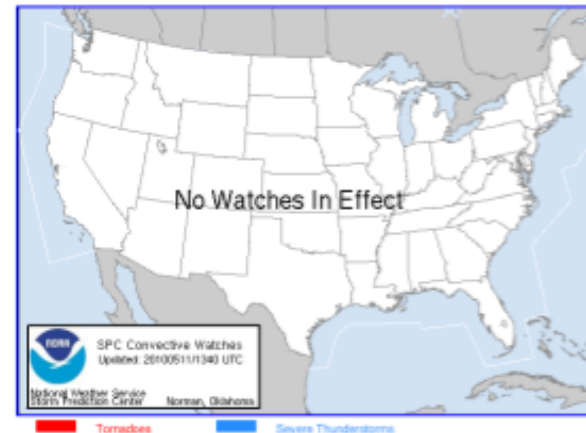
How to survive a tornado

In the United States, the National Weather Service issues **tornado watches** for areas likely to produce tornadoes and severe thunderstorms.

So, people should turn on a radio or television and listen for announcements

Current Convective Watches

Updated: Tue May 11 12:40:11 UTC 2010



<http://www.spc.noaa.gov/products/watch/>



A **tornado warning** is an alert issued by Government Weather Services to warn that a tornado may be imminent. When this happens, the danger is serious and the tornado **sirens** start going off in that area.

3rd STEP: TRESURE HUNT ON THE WEB!

Security tips

Tornadoes kill an average of 70 people in the U.S.A each year
and self-protection in a tornado area is vital

If a tornado has been sighted, go to a safe place, turn on a battery-powered radio
and wait for instructions or an all-clear.



But where is safe? The watchword is **DOWN**.

If your house has a **basement**, go there. If not, look for an interior room, like a closet or bathroom. Try to hide under a sturdy piece of furniture and **protect your head and neck** with your arms, blankets or a mattress.

If in a **mobile home** or **a car**, go outside and take shelter in a basement, a ditch or even a depression in the ground.

Mobile homes have a disastrous tendency to collapse or explode in tornadoes.

3rd STEP: TRESURE HUNT ON THE WEB!

Tornadoes in the past



33 people died in Xenia's tornado, the deadliest of 148 storms that raged through 13 states during the tornado "super outbreak" on April 3-4, 1974. In 16 hours and 10 minutes, 330 people were killed and nearly 5,550 were injured from Illinois to Georgia.

watch the NBC video on
Xena's 36th anniversary!

Another raging storm of tornadoes ran across Tornado Alley on Sunday, May 4, 2003. One of the worst tornado outbreaks in recent memory killed at least 39 people, and obliterated towns in Missouri, Tennessee and Kansas.



3rd STEP: TREASURE HUNT ON THE WEB!

Tornadoes in Italy

Tornadoes may occur in Italy, too.
They are rare and less strong than American tornadoes.



Bergamo, 3 luglio 1995



Parma, 8 luglio 2000



Some of the historical Italian tornadoes took place in :

- Piacenza, 1965, 9 victims.
- Catania, 1968, 2 victims, 200 injured.
- Venice, 1970, 36 victims, 500 injured.

3rd STEP: TRESURE HUNT ON THE WEB!

Curiosities

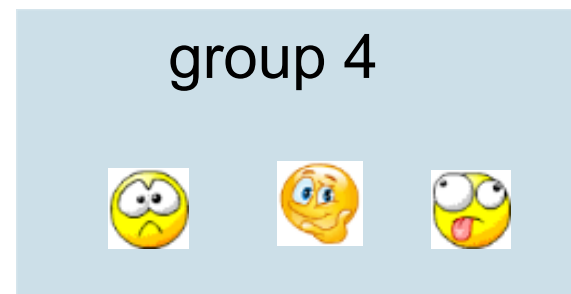
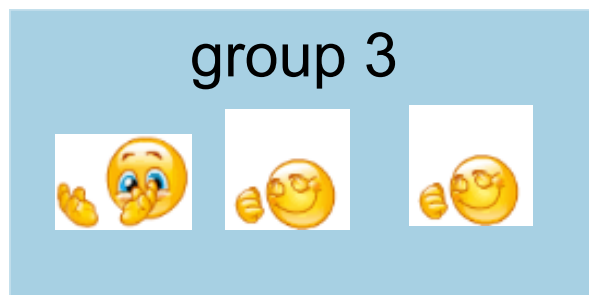
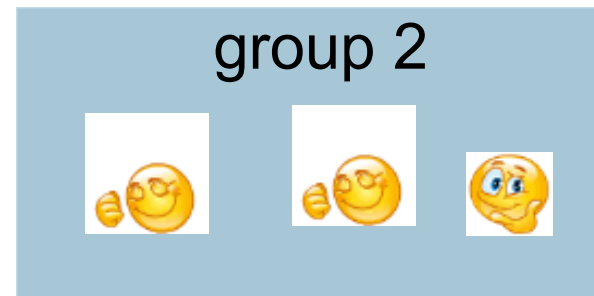
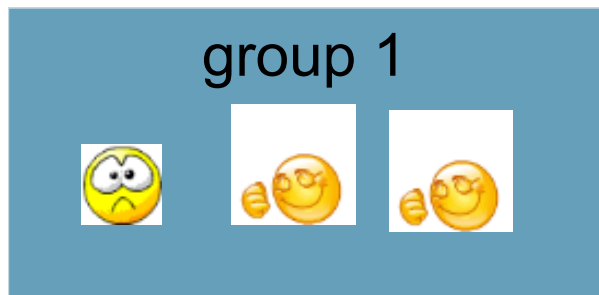
Why does the sky turn purple before a tornado? Because tornadoes usually happen later in the day, when the sun is approaching the horizon. That creates a reddish tinge in the sky. But thunderclouds are primarily blue, because of the water they contain. When blue objects are illuminated with red light they appear purple!



The record number of tornadoes in one day was on April 3rd, 1974. There were **148 tornadoes** in the USA and Canada. They killed 315 people and destroyed many, many homes!

On March 21, 1913 a tornado carried a pillow 20 miles from Scyrene to Lower Peach Tree, Alabama

WAS IT AN EFFICIENT COOPERATION?



hay_devils.flv

how a tornado forms.flv