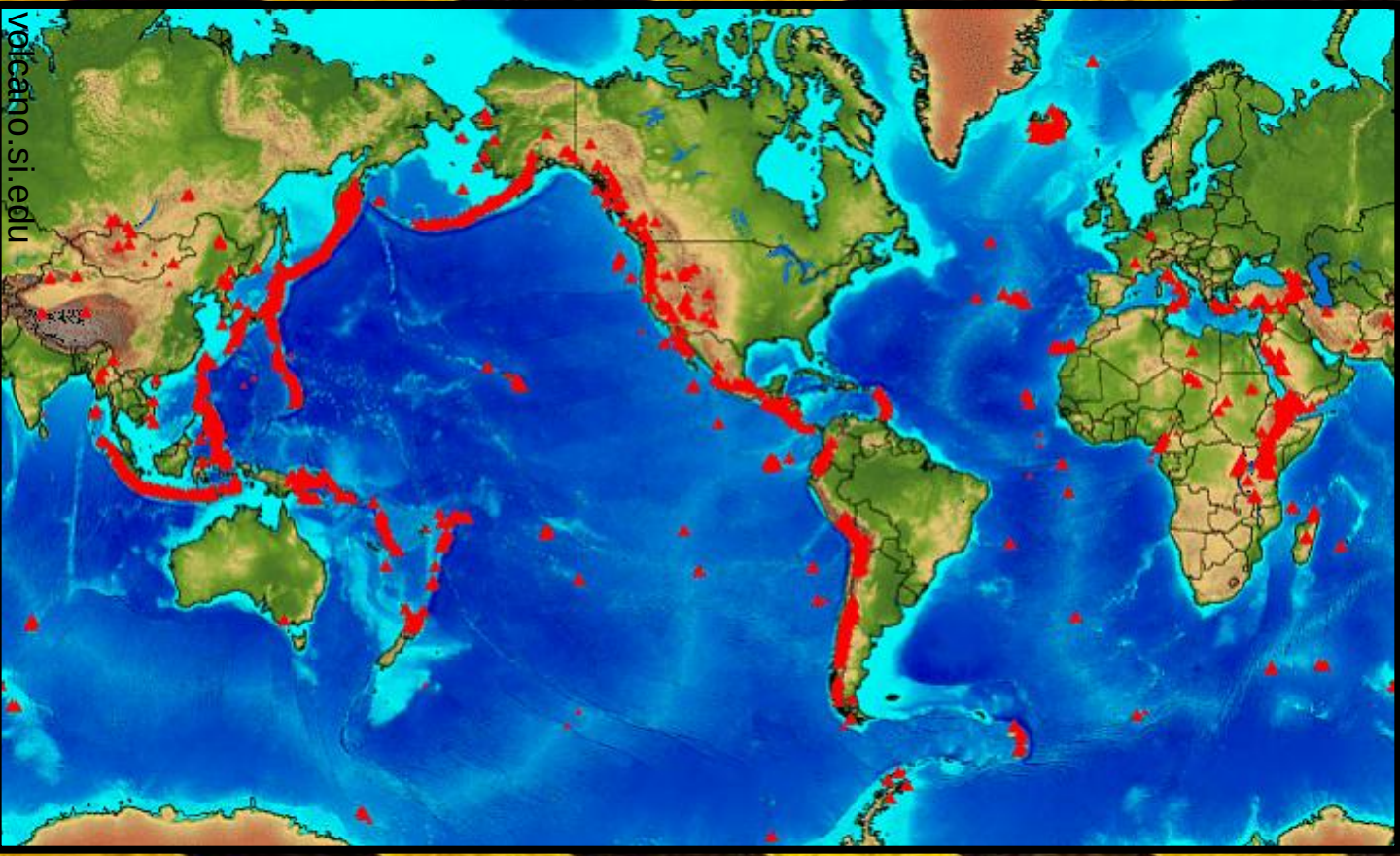
DISASTER ZONE

DEADLY HAZARDS:

VOLCANOES



The red triangles show where active volcanoes are located. Volcanoes are often found along the boundary between two tectonic plates.

VOLCANOES

Some volcanoes are high mountains….

….others are just vents in the ground.

VOLCANOES

Some volcanic eruptions are effusive (gentle)….

….others are explosive. These eruption columns can be over 30 km high.

VOLCANOES

Many volcanoes are close to towns and cities. Scientists monitor these volcanoes carefully to try and keep people safe.

VOLCANOES

Lava flows are quite slow, but they destroy buildings, crops, and roads.

VOLCANOES

Volcanoes can produce huge volumes of ash. Ash kills plant life, makes driving very dangerous, and damages jet engines. Ash looks like dust, but it's very heavy – it made this aeroplane tip over.

VOLCANOES

Lahars (sometimes called mudflows) happen when volcanic ash mixes with water. They travel many miles from the volcano, and can bury entire towns in minutes.

VOLCANOES

Pyroclastic flows are the deadliest volcanic hazard. Scorching clouds of gas, ash, and rocks race along the ground at up to 100 km per hour, burning everything in their path.

VOLCANOES

Volcanoes emit toxic gases, including sulfur, fluorine, and chlorine. These gases often form acid clouds or acid rain, making the air dangerous to breathe, destroying plant life, and even corroding metal.

VOLCANOES

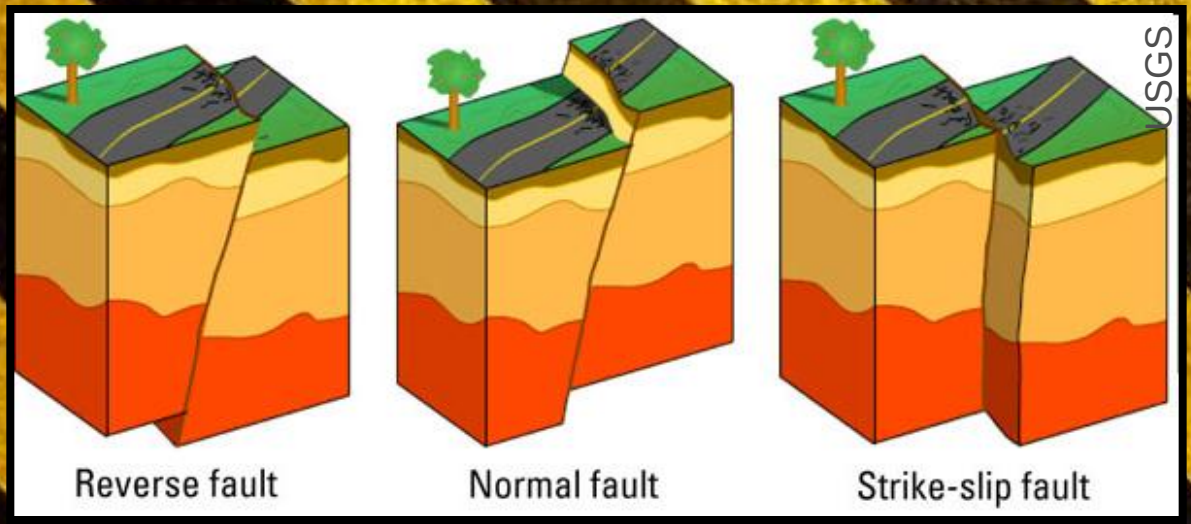
DISASTER ZONE

DEADLY HAZARDS:

EARTHQUAKES

EARTHQUAKES

Earth's crust is made up of moving pieces called tectonic plates. Earthquakes happen along faults at the edges of these plates.



Earthquakes can open large cracks in the ground.

EARTHQUAKES

These fences have been pulled apart by two tectonic plates moving in different directions.

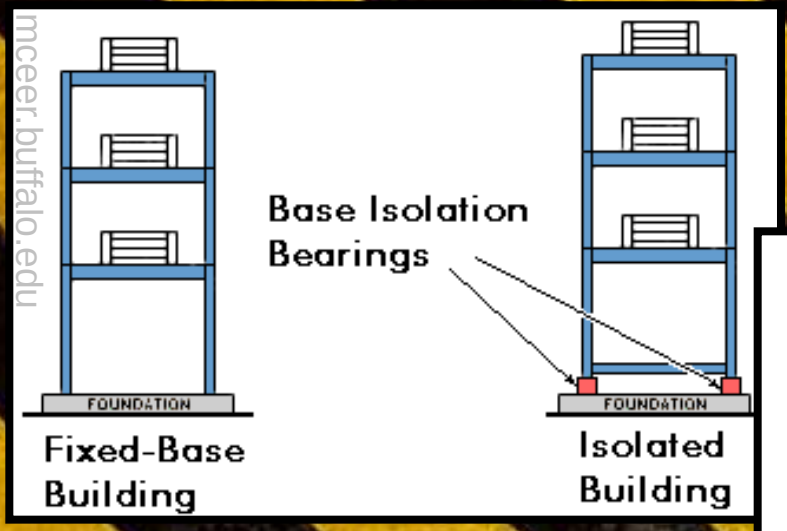
EARTHQUAKES

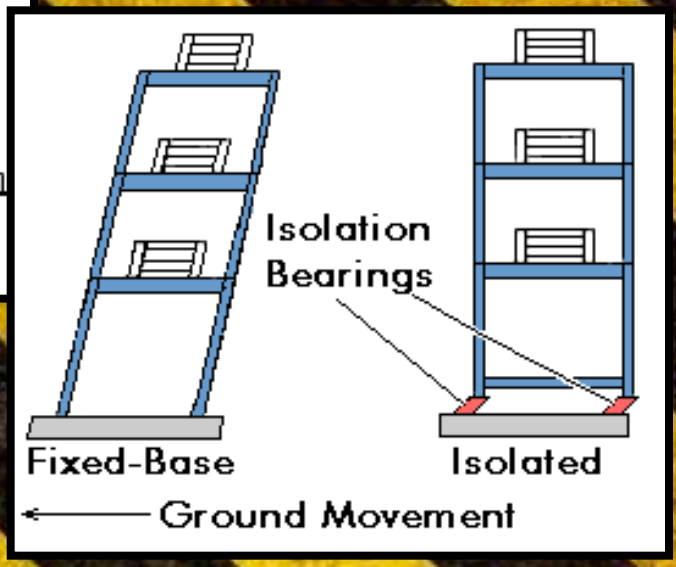
Earthquakes can trigger tsunamis and landslides.

EARTHQUAKES

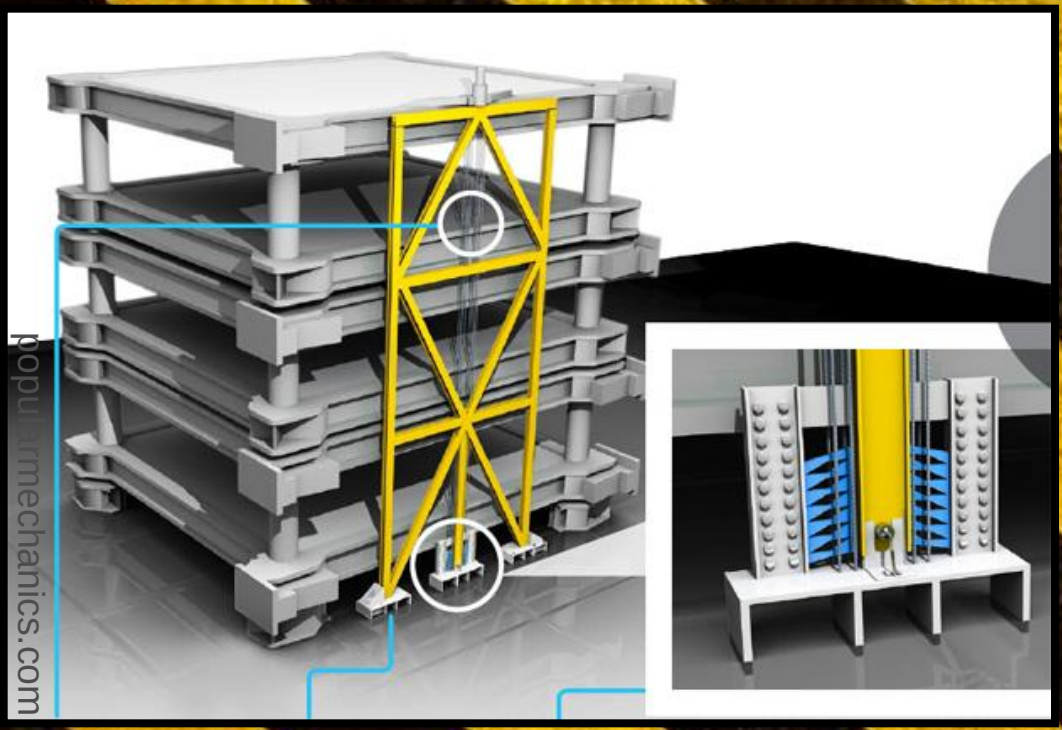
Many buildings collapse during earthquakes.

EARTHQUAKES





Earthquake-proof buildings are designed not to collapse. This technology can save many lives – but earthquake-proof buildings are expensive.



EARTHQUAKES

There are many earthquake-proof buildings in Japan and California, where earthquakes are common.

EARTHQUAKES

Most old buildings are not earthquake-proof, but this building in Turkey has survived earthquakes for 1500 years!

EARTHQUAKES

DISASTER ZONE

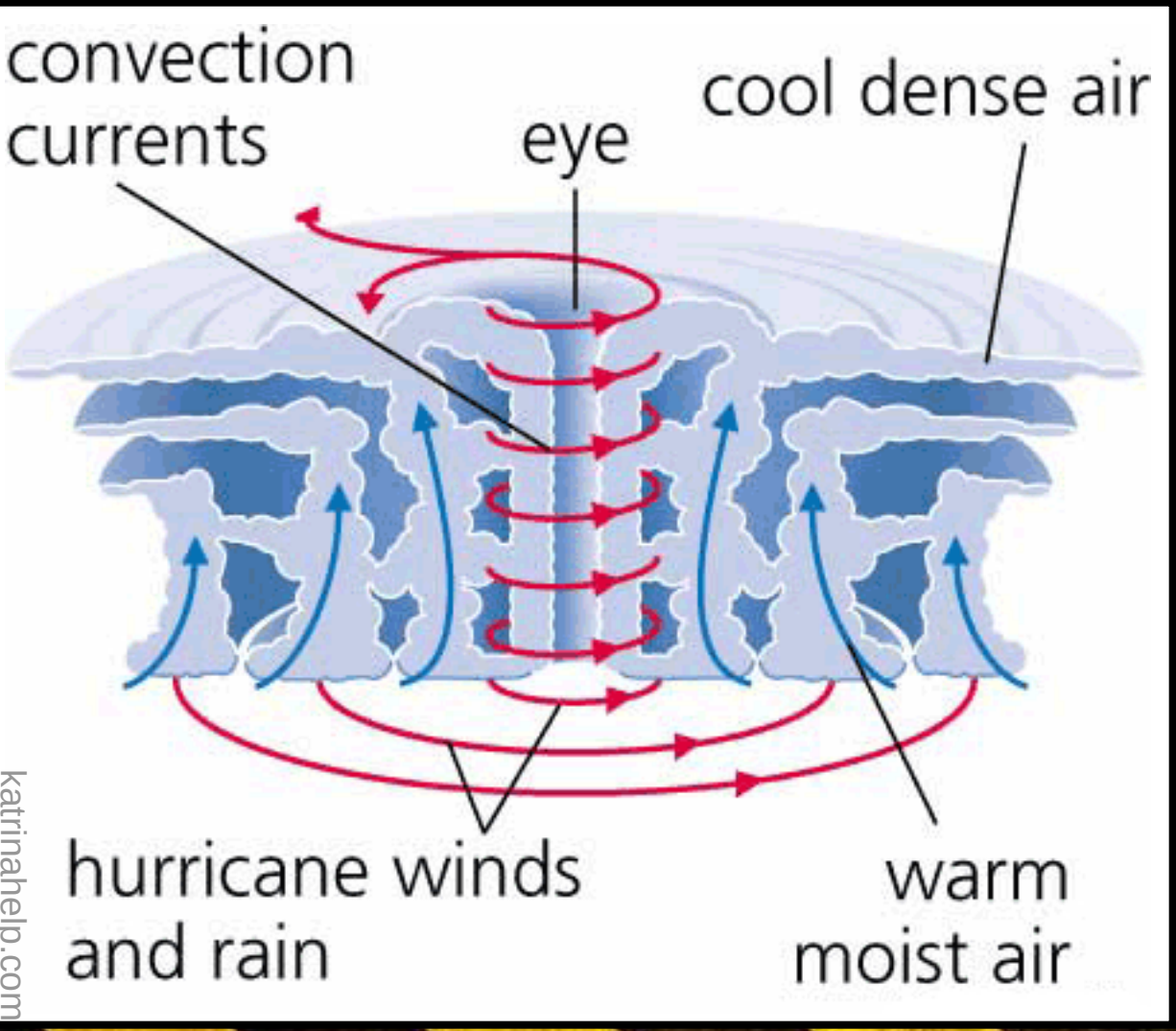
DEADLY HAZARDS:

HURRICANES

Very large tropical storms only happen in some parts of the world, and they always move in the same direction.

In the Atlantic, they are called hurricanes; in the Pacific, they are called typhoons; in the Indian Ocean, they are called tropical cyclones.

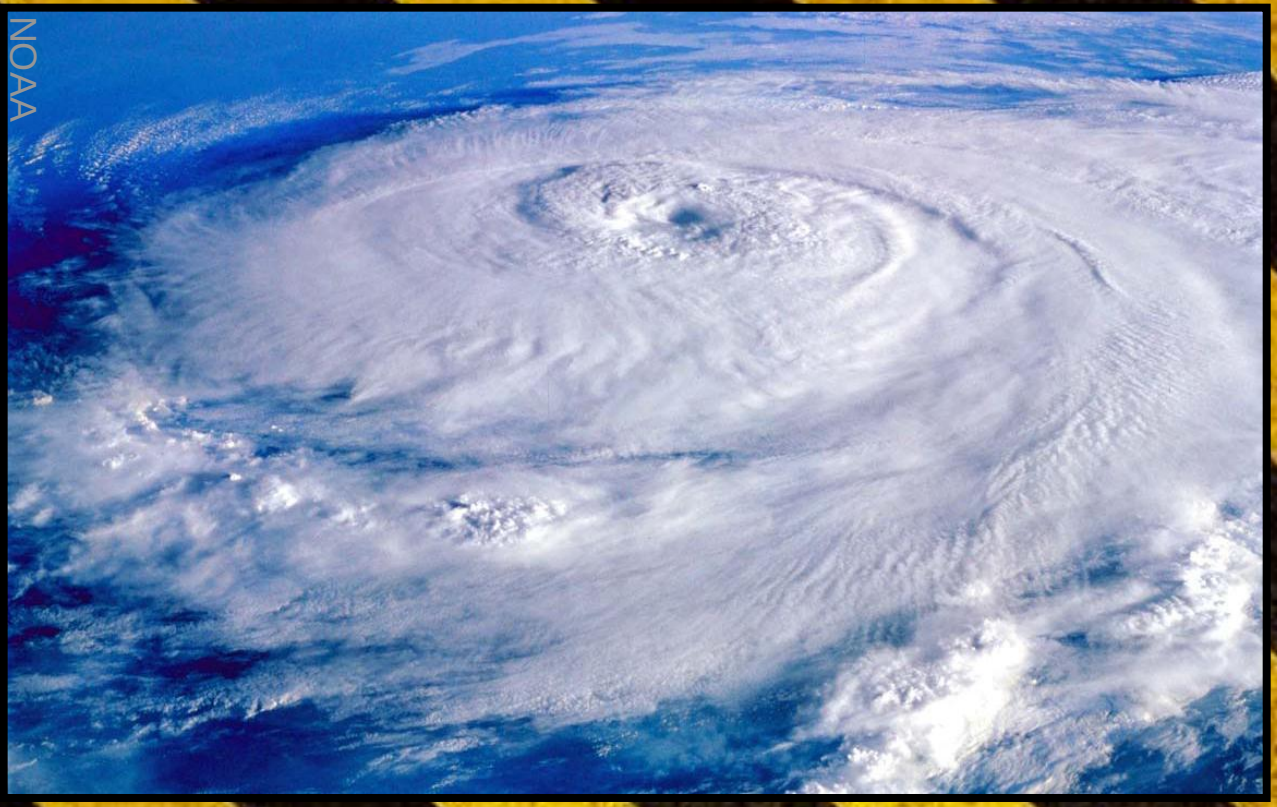
HURRICANES



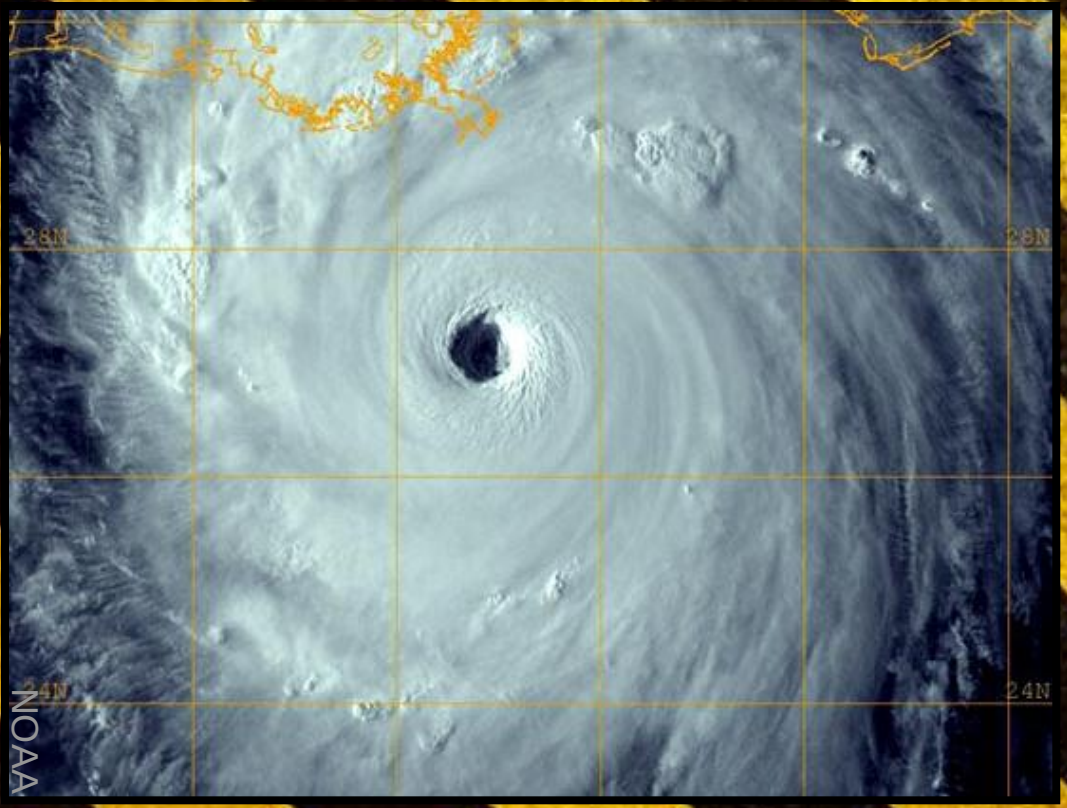
Hurricanes are giant, spinning storms. They start as small storms, but grow until they are hundreds of miles wide.

Hurricanes start over the warm tropical sea, and travel toward land.

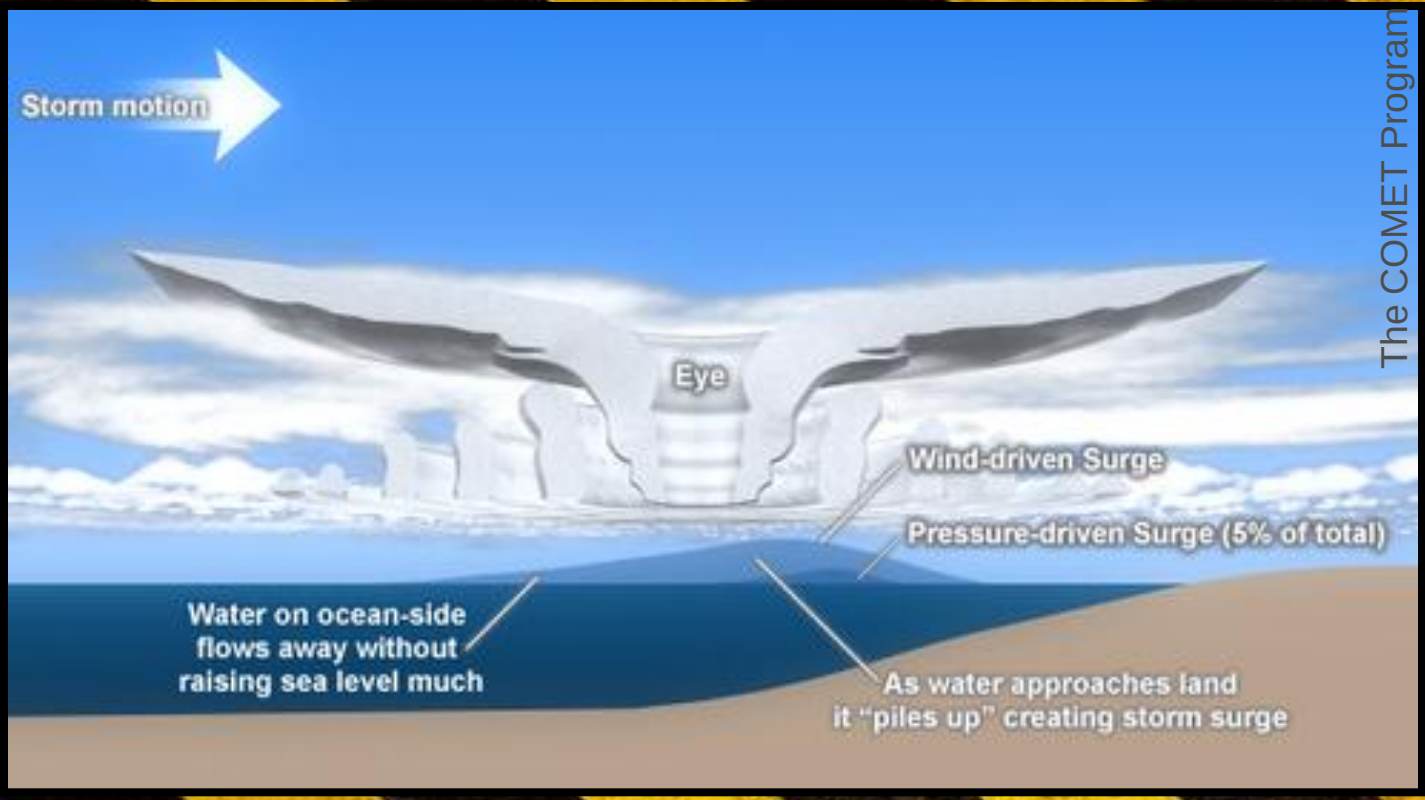
HURRICANES



Hurricanes are so big, they are easy to see from space.



HURRICANES



The COMET Program

Hurricanes are so powerful they push the seawater up onto the land. This is called a storm surge. It is the most dangerous hurricane hazard.

NOAA

HURRICANES

Tropical storms become hurricanes when their wind speed reaches 74 mph. The strongest hurricane winds are over 155 mph.

HURRICANES

Hurricane winds and storm surges are very destructive.

HURRICANES

Hurricane Katrina hit the US in 2005, destroying special dams, called levees.

The flood waters covered 80% of the city of New Orleans.

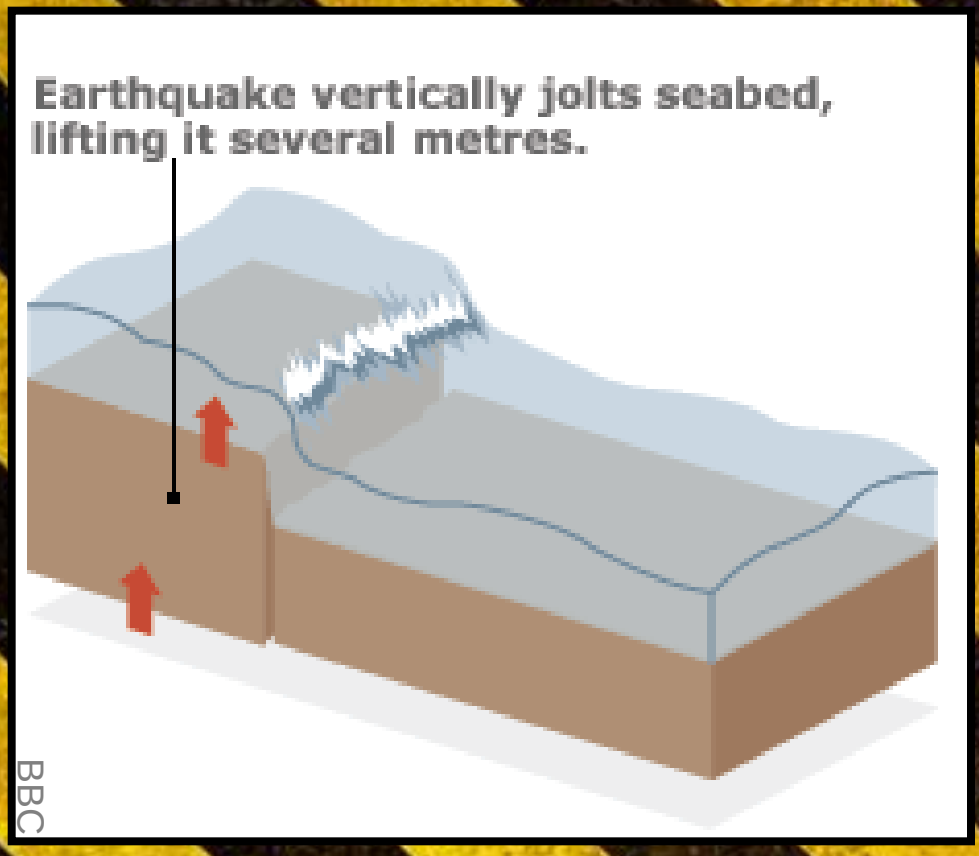
HURRICANES

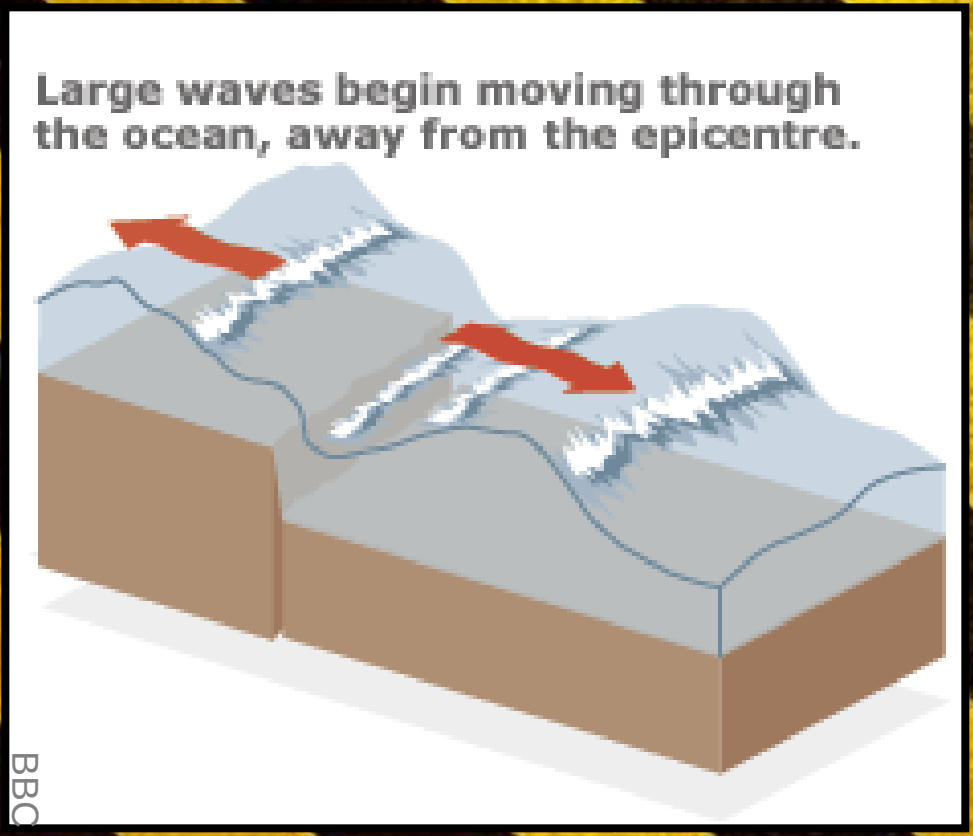
DISASTER ZONE

DEADLY HAZARDS:

TSUNAMIS

How to start a tsunami….





TSUNAMIS

National Geographic

The large waves eventually hit land.

BBC

TSUNAMIS

The large waves eventually hit land.

TSUNAMIS

As the waves move into the shallows, the moving water can form powerful whirlpools.

TSUNAMIS

On Boxing Day 2004, an earthquake triggered a tsunami which killed over 200,000 people in 13 countries around the Indian Ocean.

TSUNAMIS

There are early-warning systems to let people know when tsunami waves are coming. But if the tsunami begins very close to land, there isn't time to sound the alarm. This is what happened in Japan in 2011.

TSUNAMIS

DISASTER ZONE

DEADLY HAZARDS:

WILDFIRES

Some wildfires are started by lightning, but many are started by people, either by accident or on purpose.

WILDFIRES

After a long dry spell, grass, bushes, and trees burn very easily.

WILDFIRES

Strong, dry winds can help wildfires move extremely fast.

WILDFIRES

Wildfires are very difficult to control – they often destroy houses.

WILDFIRES

Fighting wildfires can be very dangerous.

Aeroplanes and helicopters are sometimes used to drop water and chemicals on the fires from above.

WILDFIRES

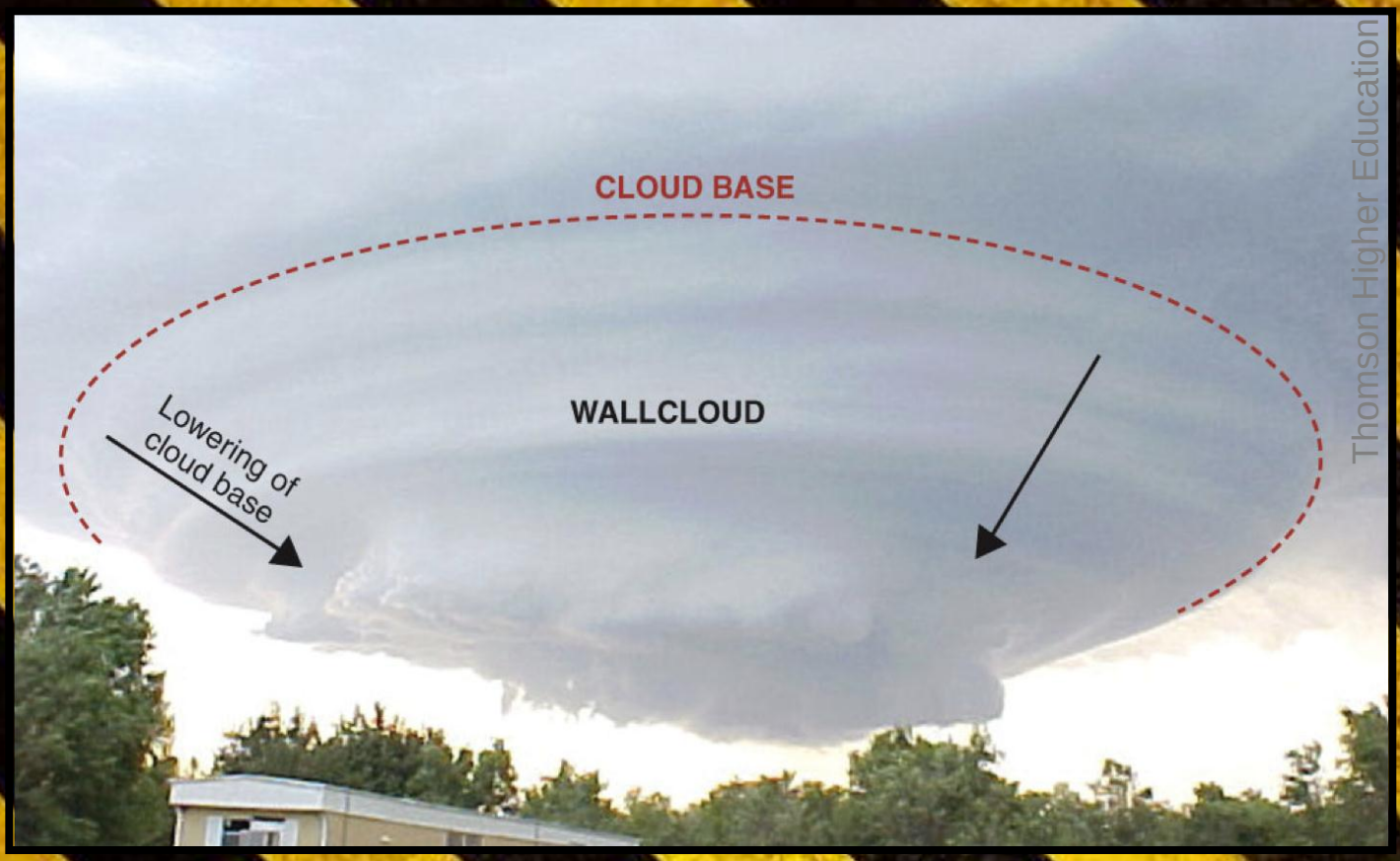
Where wildfires are likely, lookout towers are often used. Park rangers or volunteers watch for smoke – if the fire is caught early, it might be easier to put out.

WILDFIRES

DISASTER ZONE

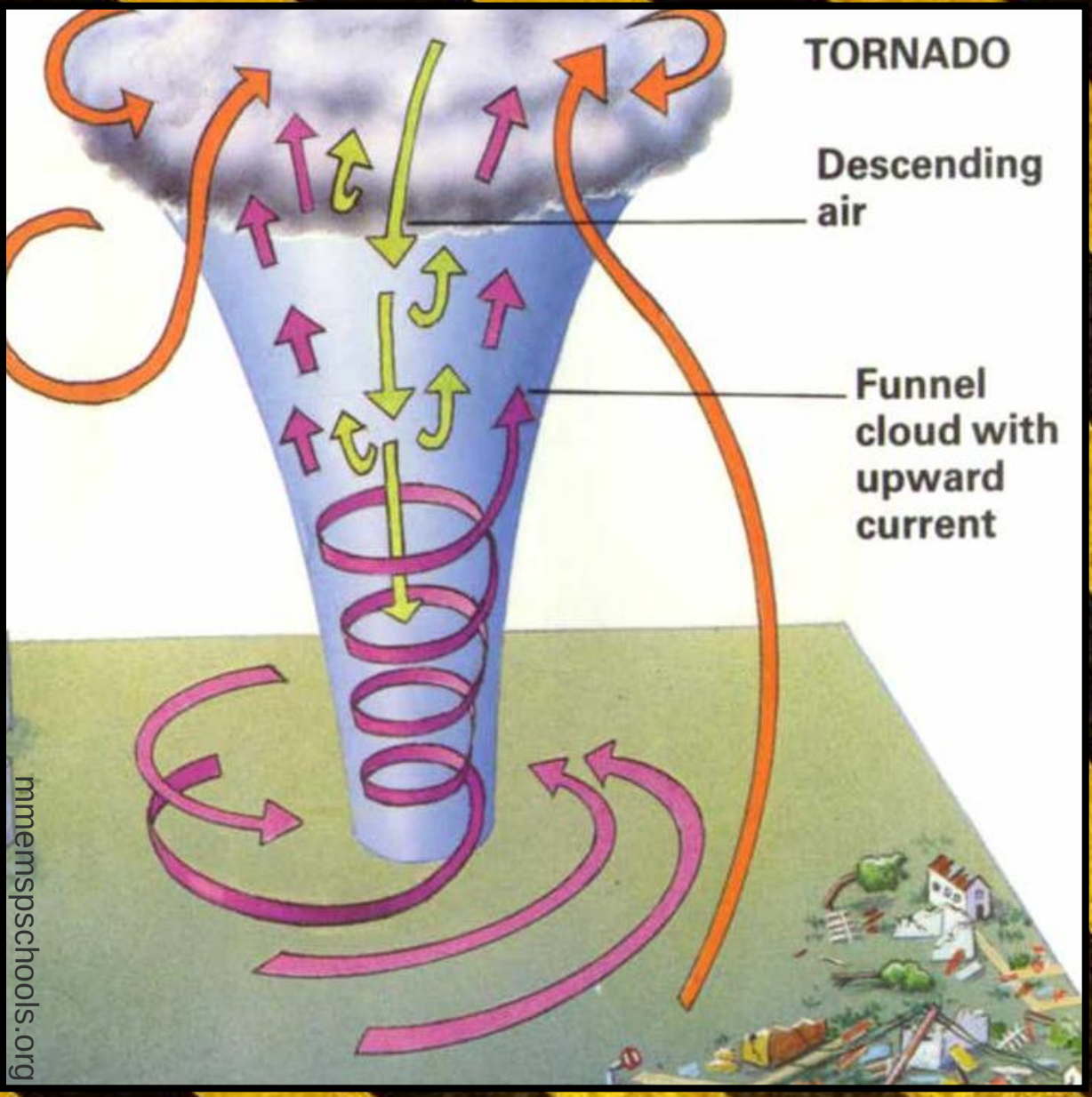
DEADLY HAZARDS:

TORNADOES



Tornadoes form when the cloud base of giant, organized thunderstorms lowers toward the ground.

TORNADOES



Tornadoes are spinning columns of air lowered from the cloud to the ground. Many tornadoes can form from one stormcell.

TORNADOES

Tornadoes don’t last long – usually just a few minutes.

usatoday.com

TORNADOES

The winds in a tornado can be over 250 mph. Some tornadoes stay over the same patch of ground – others move forward at up to 70 mph.

TORNADOES

Tornadoes are most common in the US, but there are be over 100 small tornadoes in Britain every year!

TORNADOES

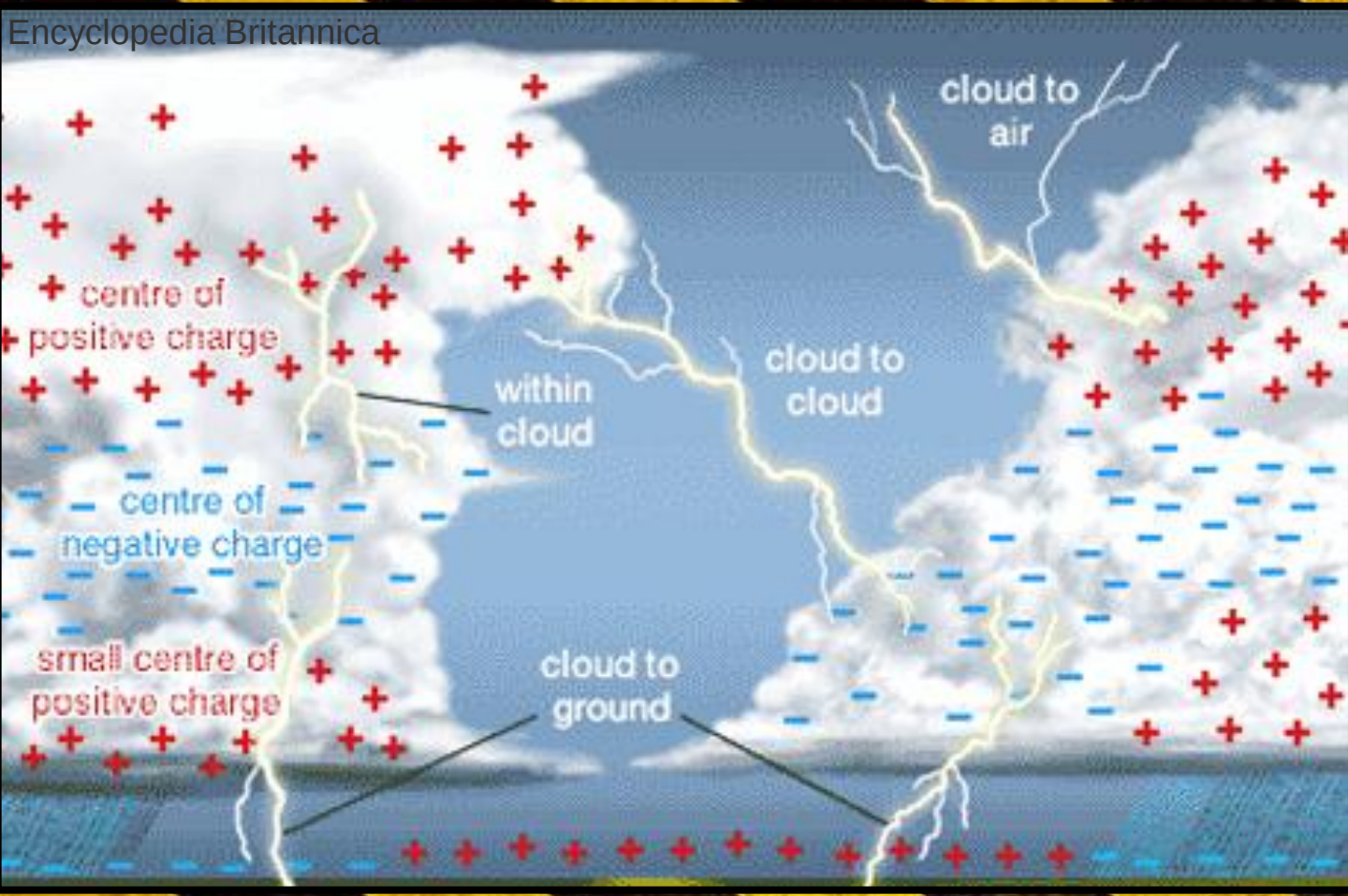
TORNADOES

Where tornadoes are common, scientists watch storm clouds carefully. If they think tornadoes are going to form, they sound alarms so people can take shelter.

DISASTER ZONE

DEADLY HAZARDS:

LIGHTNING



Thunderclouds have electrically charged layers. Lightning happens when electrical charge is exchanged – between cloud layers or between clouds and the ground.

LIGHTNING

Lightning can be over 27,000ºC – that's 5 times hotter than the surface of the sun!

LIGHTNING

Lightning can travel at 140,000 miles per hour!

LIGHTNING

Every year, the Earth experiences an average of 25 million lightning strikes.

That's more than a hundred lightning bolts every second.

LIGHTNING

Lightning is attracted to objects that are higher than their surroundings, like trees, skyscrapers, and even umbrellas and golf clubs.

Lightning often strikes the same place again and again.

LIGHTNING

Hundreds of people are struck by lightning every year.

LIGHTNING