Extreme Weather: Overview

Turn on the news or open your phone to check social media and you are likely to see a story about extreme weather events. They are in the headlines more than ever. This isn't simply due to more coverage by news teams: weather events like wildfires, hurricanes, extreme heat, droughts, and flooding from severe storms are happening more frequently and with greater intensity than in the past. In fact, a strong El Niño event is predicted this year.

Extreme weather events are a consequence of climate change. Consider this simplified string of cause and effect: Every year, more fossil fuels are burned, and carbon sinks are cleared to meet the demands of humans. This leads to more greenhouse gas emissions. Rising greenhouse gas levels are a main driver of climate change. Climate change includes rising global temperatures, changes in precipitation patterns, and sea level rise – all things that lead to extreme weather.

Extreme weather events – which include drought, hurricanes, wildfire, flooding, extreme heat, extreme cold, etc. – are not new. But as the global population grows and climate change continues, extreme weather events happen more frequently and/or are more severe.

The world is expected to experience nearly two more months of extreme temperatures by the end of the century. Increased temperatures and drier conditions make areas more flammable, causing more intense and frequent wildfires. The IPCC reported that rising temperatures will likely raise the strength of hurricanes: a greater proportion will reach potentially catastrophic Categories 4 and 5. Higher temperatures impact the water cycle too, creating conditions for more extreme droughts and flooding worldwide. Check out this map from the World Wildlife Fund to see which areas face the greatest risks from different types of extreme weather.

Extreme weather can impact wildlife ecosystems and cause habitat loss. It can affect people's livelihoods, health, homes, and access to food: flooding can cause landslides and disease outbreaks; hurricanes can cause infrastructure damage.

Extreme weather is being addressed in the United Nations Sustainable Development Goals (SDGs). Goals 9 and 11 focus on building resilient infrastructure and cities to help mitigate the damage from additional severe weather events. Goal 13 focuses on mitigating the global temperature increase by reducing greenhouse gas emissions, in turn decreasing the number of severe weather events.

Imagine one of these extreme weather events and how you might mitigate its impact or stop it from happening in the first place. How will you ensure people's safety and minimize environmental damage? It's your turn to be part of the solution! Read through the subtopics below to get started.

Narrow Your Focus

Extreme weather is a broad topic that encompasses a lot of challenges, but your video can only be 60 seconds. Rather than taking on the entire topic, we recommend focusing on one part of the topic (a subtopic).

We've put together a list of suggested subtopics and credible sources. Each subtopic has a thought-provoking question to get you thinking. But there are many other subtopics, questions to think about, and credible sources on extreme weather, so don't limit yourself to what is included here.

As you conduct your research, make sure to keep a works cited list of where you get each fact. Be sure to check that your sources are credible. We will ask for your sources if you are a finalist.

As a reminder, your video must do three things:

1. **Explain your subtopic focus and how it relates to extreme weather**
2. **Connect how human population growth impacts your topic**
3. **Provide a sustainable solution**

Click on the example subtopics below to start your research and spark ideas for your video.

Looking for more resources to help you plan your video?
Check out the video project organizer (full version) or the video project guide (shorter version).

Displacement/Migration

Thought-provoking question: Who is displaced from their homes because of extreme weather events?

Extreme weather, such as floods, heat waves, wildfires, and hurricanes, can force people to leave their homes temporarily and at times permanently. In some cases, these moves can be planned while in other cases, people must leave without notice or time to prepare. As climate change makes severe weather commonplace, more people may be displaced, putting pressure on the places people move to.

- Extreme weather causes some people to migrate, but others don't have that option and must ride out the storm. (Read more: Standford University)
- 218 million people have been displaced because of weather-related events in the past decade. (Read more: UN Migration)
- Nearly 40 percent of families displaced in New Orleans from Hurricane Katrina in 2005 had not returned to the city twenty years later. (Read more: The Center Square)
- Twenty-seven countries in Africa experienced extreme amounts of rainfall in 2024, causing flooding that displaced 4 million people. (Read more: Africa Center for Strategic Studies)
- Over 330,000 people in France and Spain had to leave their homes because of a widespread wildfire in the summer of 2026. (Read more: NBC News)

Habitat Destruction

Thought-provoking question: What changes occur in an ecosystem habitat after an extreme weather event?

Wildfires, hurricanes, floods, and other extreme weather events can damage ecosystems and make survival harder for wildlife. When habitats are impacted by extreme weather, food webs are disrupted, habitats are fragmented, and opportunistic invasive species move in which affect native species and reduce overall biodiversity. As the human population grows, more land may be cleared for homes, agriculture, and other human needs. It's a problematic cycle: clearing land releases additional greenhouse gases, increasing the frequency and intensity of weather events, and destroying even more habitat.

- Floods damage habitats, destroy ecosystems, and separate wildlife communities. (Read more: The Guardian)
- Wildfires are putting over 1,660 animal species at risk of extinction. Some species are adapting to survive the increasing number of global wildfires. (See examples: National Geographic)

- Drought conditions are endangering Atlantic salmon, bumble bees, great crested newts, and more species in the United Kingdom. (Read more: SFWeekly)
- Twenty years after Hurricane Katrina, the coastal ecosystems in Louisiana and Mississippi are still recovering. (Watch: Audubon)
- Extreme weather events create conditions for invasive species to thrive because they adapt better to disrupted environments compared to native species. (Read more: Biological Conservation via Science Direct)

Food Production

Thought-provoking question: How do extreme weather events disrupt food access in affected areas?

Global food resources cannot escape severe weather events. Extreme heat waves, hurricanes, and wildfires can destroy crops and reduce the amount of food harvested. When crops are damaged, transportation costs may rise, driving up food prices and limiting access to fresh food, leading to food deserts. As population growth and climate change continue, the frequency and intensity of severe weather events will likely rise, disrupting agricultural and transit systems, reducing food supplies, and increasing prices.

- Extreme weather events including droughts, floods, and wildfires are destroying crops across the world. (Explore the map: Carbon Brief)
- Food supplies are at risk due to extreme heat. (Read more: United Nations)
- Fossil fuel use is increasing the frequency of extreme weather events, making food more expensive for people in the United States. (Read more: Center for American Progress)
- Extreme flooding and drought in different parts of the world caused by “Super Niño” events this year could affect food production and prices for years. (Read more: The Guardian)
- After Hurricane Helene, fresh food became difficult to find in small towns across Western North Carolina, creating food deserts. (Read more: NPR)

Human Health

Thought-provoking question: What risks do extreme weather events create for human health?

Along with many extreme weather events come risks to people’s health. Wildfires can make the air unsafe to breathe, flooding can spread hazardous infectious diseases, and extreme temperatures can cause heat exhaustion that could be deadly. As storms become more

frequent and people live closer together, the risk of disease spread increases too. On top of that, pollution from a growing population can trap heat in cities, raising temperatures even further and trapping more harmful particulates in the atmosphere.

- In the summer of 2026, 117 million people in the U.S. had unhealthy air quality levels due to wildfires in Canada. (Watch: PBS NewsHour/YouTube)
- Current U.S. wildfire activity and related air quality conditions are monitored and made readily available using satellite data. (Explore the map: ArcGIS)
- Europe experienced over 60,000 heat-related deaths in 2022. (Read more: World Health Organization)
- Within a single city, some neighborhoods often run several degrees hotter than others, and standard weather apps often aren't capturing that accurately. (Watch: PBS)
- There were twice as many major floods between 2000 and 2019 compared with 1980 to 1999, increasing the spread of infectious diseases such as cholera, diarrhea, and malaria. (Read more: Global Transitions via Science Direct)

Economics and Poverty

Thought-provoking question: How do more frequent and extreme weather events make it harder for people to escape poverty?

Vulnerable communities often suffer the most when extreme weather hits due to discriminatory practices that expose them to greater risks. Education and job losses are often hard to recover from after an extreme weather event, contributing to the cycle of poverty. As populations grow, more resources are often required to break the poverty cycle – energy to power schools, hospitals, recycling centers, etc. Unfortunately, resource use is often tied to burning fossil fuels which worsen weather events. When severe weather hits high poverty areas, the economic risks to marginalized people increase.

- Extreme weather disasters can lower household incomes by 21.5 percent for years after the event, with low-income families taking up to three times longer to recover financially. (Source: Medium)
- Because of discriminatory practices such as redlining, disadvantaged communities are often located in areas with higher environmental risks, including exposure to severe weather events and their impacts. (Read more: Enterprise)
- More frequent extreme weather events directly impact students' education due to school closures. They also indirectly contribute to learning losses from the health impacts of food insecurity, lower air quality, and more. (Read more: World Bank Group)
- More than 80 percent of U.S. workers have had a weather-related incident impact their job in 2025. (Read more: Forbes)

- Compare the Social Vulnerability Index Map with NOAA's Billion-Dollar Weather and Climate Disasters Map to identify U.S. areas where communities experiencing poverty are also affected by costly extreme weather events.

Damage to Infrastructure

Thought-provoking question: Can the buildings and systems we rely on daily be designed to withstand extreme weather?

Damage to local and global systems, and physical structures, often happens because of extreme weather events. Stress is put on the buildings, communication networks, transportation systems, and power infrastructure we rely on every day for school, work, health, recreation, and more. As extreme weather events become more common, many cities and countries around the world are wondering how their buildings and systems can withstand the storms. As the population grows, more people depend on these systems, placing additional strain on weakened infrastructure during and after extreme weather events.

- Extreme heat, wildfires, flooding, and stronger hurricanes can damage roads, railways, bridges, and ports. Adaptation strategies can help transportation systems better withstand severe weather. (Read more: Climate Central)
- A small town in Pennsylvania shows how the U.S. power grid is under threat during extreme weather events. (Read more: Penn State, Institute of Energy and the Environment)
- After major flooding in 2010, Pakistan strengthened its infrastructure, leaving it better prepared for similar monsoon rains and flooding in 2022. (Read more: Humanitarian Practice Network)
- Extreme weather events can damage and disrupt health care systems and transportation, limit medical resources, and decrease the quality and access of health care. (Read more: Public Health via Science Direct)
- Ten cities around the world became stronger and more environmentally friendly after experiencing severe weather events. (Read more: One Earth)

Choose Your Own Subtopic

Thinking of your own subtopic can be challenging if you don't know where to start. We've put together a guide to help spark some ideas. Follow the path below to come up with a subtopic that is personal and meaningful to you, so it stands out from other entries.

What do you already know?

Before doing your research, write a prior knowledge list of everything that comes to mind when you think about extreme weather. Include any books, articles, podcasts or videos where you learned about extreme weather and anything you remember from them.

What is happening in your community?

Has your community experienced any extreme weather events? How did they affect you, your friends, family, and neighbors? Are these weather patterns becoming more common than in the past? Are there other areas around the world impacted by these same events?

How can you start your research?

Look back at your prior knowledge list about extreme weather. Is there anything else you want to know? What questions do you have about how these events impact your local and global communities? Start looking for credible sources, search for answers, explore more about extreme weather, and see where your research takes you!

The 60 Second Check

Your video can only be a maximum of 60 seconds. Can you:

- Explain the problem clearly?
- Show how population growth is connected to the subtopic?
- Propose an innovative, realistic solution?