

# What is a drought?

By Gale, Cengage Learning, adapted by Newsela staff on 11.15.17

Word Count **871**

Level **1020L**



Drought is a time of very little rain, or no rain at all. Photo by: Pierre Banoori/Wikimedia

A drought is a period of time with little or no rain or snow. A short-term drought may last for weeks or months, while a long-term drought may last for years. Droughts can be bad for the environment and food production. Responding to the effects of drought is important to sustainability. Human activity can increase a drought's severity through poor water use and agricultural practices. Climate scientists agree that human activity influences weather patterns that cause drought.

## How Droughts Happen

Atmospheric conditions are the main cause of droughts and the first of a chain of factors. Atmospheric conditions can raise the surface temperatures of land and water. Warmer air causes increased evaporation and it holds more moisture. This, in turn, changes cloud formation patterns and local weather.

Clouds contribute to the uneven heating of the Earth's surface, which is the source of wind. Different patterns of uneven heating cause different winds, which then carry the clouds to different locations. Scientists have seen shifts in wind patterns due to changes in ocean temperature. Moist air that would normally carry rain or snow to one place instead carry them to another, causing changes in rain and snowfall.

## **How Humans Make Droughts Worse**

Droughts occur naturally, but humans can make them more devastating. Poor farming practices can dry out the soil and increase erosion. Poor government policies and the activities that contribute to climate change also worsen the effects of drought.

The National Aeronautics and Space Administration (NASA) conducted a study in 2015. It found that droughts will get more intense as our planet warms up. Increased evaporation will dry and break down the soil and empty reservoirs. In order to control the severity of droughts, the authors believe humans must reduce their carbon emissions.

## **California's Drought**

Drought in California has wide-reaching effects. California has a huge population, and it produces about half of the nation's produce. It has natural droughts due to its cycle of rainy and dry seasons, but has long been thought to be the perfect place for year-round farming.





California suffered a long-term drought from 2011 to 2017. Many scientists considered it the worst in the state's history and maybe in 1,000 years. Population growth and climate change contributed to the drought. "For the first time ever, scientists from many different fields see parallel lines of evidence for the influence of human-induced climate changes" said Peter Gleick, head of the Pacific Institute in Oakland, California. "In short, climate change has made the current drought worse."

The drought was rated using a five-point scale, where level five is "exceptional" drought. By July of 2015, two-thirds of California was at a level four and almost half was at a level five. Governor Jerry Brown ordered the state to use 25 percent less water. Critics felt the new laws unfairly punished citizens instead of farmers. Lawns and pools have been targeted as wasteful, but experts say agriculture is the real problem. California's cities use just one-fourth the amount of water used by agriculture. Supporters of the new laws argued that farmers had left 625 square miles of land unused to reduce water use. Farmers historically used groundwater from



underground aquifers when needed. However, California lacked snowmelt to refill the aquifers. This triggered fears due to the increased risk of the ground settling and collapsing into the empty aquifers.

Richard M. Frank of the San Francisco Chronicle newspaper summarized California's situation. "The fundamental problem is that California's water rights system was created over a century ago," he said. Then, the state's population was one-tenth of what it is now, and farmers had plenty of reliable water.

## How Droughts Affect Human Lives

Droughts affect ecosystems and communities both directly and indirectly. Direct effects include crop failure, wildfires and changes to environments like old-growth forests. Animals in an environment are also affected by changes in their ecosystem.



Indirect effects of drought can be near or far. A poor crop means less money for farm workers, so they spend less at local businesses. It might also mean a farmer delays buying a tractor from a manufacturer in another state. A food's price rises when supply is low, which affects people across the country when they buy groceries.

In wealthy nations, droughts cause water rationing or poor water quality. In poorer countries, droughts cause disease and starvation. People who rely on livestock for milk, food or labor may lose their animals if they have too little water.

## **How People Can Lessen The Effects Of Drought**

Although droughts occur naturally, people can reduce their effects. Some communities have drought plans for water use, public awareness and monitoring. Such plans must consider how droughts are affected by climate change.

Australia's Millennium Drought was its worst in history, lasting for 12 to 15 years across the country. Now, Australia's drought plan is a model for others. Australians reused water from baths, sinks and washing machines. They employed rock gardens, rain barrels and water-efficient appliances. Australia even built costly factories that remove salt from seawater.

## Quiz

- 1 Read the section "How Droughts Affect Human Lives."  
Select the paragraph that explains how droughts can affect the economy.
  
- 2 Which section of the article highlights the idea that droughts have led to innovative ways to conserve water?
  - (A) "How Droughts Happen"
  - (B) "How Humans Make Droughts Worse"
  - (C) "California's Drought"
  - (D) "How People Can Lessen The Effects Of Drought"
  
- 3 During California's drought, why did critics think that laws aiming to conserve water unfairly targeted citizens?
  - (A) because not every citizen has a lawn or pool that requires excess water
  - (B) because farmers use a higher percentage of water than citizens
  - (C) because citizens were upset that farmers could not grow certain crops
  - (D) because farmers failed to fill the aquifers, placing citizens in danger
  
- 4 What is the MOST LIKELY reason the author included the information about the relationship between clouds and wind?
  - (A) to explain how the atmosphere is damaged and how clouds and wind have weakened as a result
  - (B) to explain how precipitation is generated and why clouds behave differently during droughts
  - (C) to explain how precipitation travels to different locations and why there may be more or less in certain areas
  - (D) to explain how atmospheric conditions have changed recently because of increased temperatures of land and water