**Senior Honors Running Start Cause/Effect Practice**

**Objective**: To use an excerpt from an article about wildfires to create your own graphic organizer which highlights the causes and effects associated with wildfires.

**The options:** You can modify the fishbone diagram to create a graphic organizer for this article, or you can create your own graphic organizer. Remember to label your graphic organizer well.

**Cause**- Why did it happen?

**Effect**- What happened because of this?

Causes and Effects of Wildfires

The November 2018 Camp Fire that swept through and wiped out major portions of the town of Paradise, California, claimed nearly ninety lives as residents had little to no time to evacuate. Once the fire passed through, crews were dispatched to search home rubble and scorched vehicles for human remains at a time when nearly a thousand people were missing. As of mid-December, most of the missing had been found. Authorities reported that the Camp Fire was linked to climate change.

The Intergovernmental Panel on Climate Change says variability in climate is often the dominant factor affecting large wildfires and that rising temperatures and longer droughts will increase the frequency of wildfires, particularly in semi-arid regions. According to the *Fourth National Climate Assessment,* released by the U.S. Global Change Research Program in November 2018, "the duration of the season during which wildfires occur has increased throughout the western United States as a result of increased temperatures and earlier snowmelt. Increased vapor pressure deficit and reduced summer [precipitation](https://go.gale.com/ps/retrieve.do?resultListType=RELATED_DOCUMENT&searchType=ts&userGroupName=nhais_401&inPS=true&contentSegment=&prodId=GIC&docId=GALE|CP3208520179&it=r) have deepened summer droughts in the West and thus increased wildfire risk."

In addition to climate change, researchers in the United States have observed that an invasive alien species of prairie grass known as cheatgrass has fueled severe wildfires. Cheatgrass holds less [water](https://go.gale.com/ps/retrieve.do?resultListType=RELATED_DOCUMENT&searchType=ts&userGroupName=nhais_401&inPS=true&contentSegment=&prodId=GIC&docId=GALE|CP3208520179&it=r) in its blades, dries out faster, burns hotter, and ignites more easily than most native grasses and plants in the Great Basin region of the United States. The plant was transported originally to the U.S. East Coast through trade. Cheatgrass has helped fuel some of the largest wildfires in the western United States since 2002. Researchers are searching for ways to limit the wild propagation of cheatgrass.

Researchers also note that thinning out forests, allowing some fires (not affecting people) to burn, and using controlled burns will help reduce the risk of wildfires. But many fires are suppressed when people's lives and health are at risk.

The term *smoke waves,* coined by researchers at Harvard and Yale Universities, describes two or more consecutive days of unhealthy fine-particle air [pollution](https://go.gale.com/ps/retrieve.do?resultListType=RELATED_DOCUMENT&searchType=ts&userGroupName=nhais_401&inPS=true&contentSegment=&prodId=GIC&docId=GALE|CP3208520179&it=r) generated by wildfires. According to the group's research, published in the journal *Climate Change* in 2016, smoke waves will likely affect more than 82 million people in the United States alone within the next three decades where conditions for wildfires are plentiful, mostly in northern California, western Oregon, and the Great Plains. The team identified counties in the United States most at risk for smoke waves in order to aid the U.S. Forest Service in prioritizing areas to target wildfire risk reduction. Researchers estimated that smoke waves within the next 30 years could impact the health of 13 million more people than they do presently, especially children and the elderly who are more vulnerable to the effects of [air pollution](https://go.gale.com/ps/retrieve.do?resultListType=RELATED_DOCUMENT&searchType=ts&userGroupName=nhais_401&inPS=true&contentSegment=&prodId=GIC&docId=GALE|CP3208520179&it=r).

A 2016 wildfire near Fort McMurray, in Alberta, Canada, covered more than 590,000 hectares (about 1.5 million acres). Ash and dust particles from the raging fire were detected as far away as Switzerland. The fire quickly became so large and intense that it produced its own lightning and ash-containing storm clouds. Ash from the wildfires can be more hazardous than normal wood ash. For example, environmental scientists expressed continuing concern for the toxicity of the ash produced by the Fort McMurray wildfire. In some places it contained caustic levels of heavy metals such as arsenic, chromium, and lead primarily produced from the burning of vinyl siding and commercial plastics destroyed as the blaze engulfed buildings and homes in its path.

Wildfires are costly to local and national economies. Fire management agencies around the world spent billions of dollars in 2018 and the amount is expected to rise in the future. Part of the money is attributed to the high cost of protecting the increased number of homes built on land alongside the wilderness, an area called the wildland-urban interface. Other costs due to wildfires include repairing or rebuilding infrastructure, homes, schools, businesses, and other facilities. Injuries due to the fires coupled with poor air quality require substantial health care costs.

Wildfires can be deadly for species within the ecosystem and for humans who fight them. In February 2009, the deadliest bushfires (wildfires) in the history of Australia killed 173 people, including one firefighter. The fires damaged more than 3,100 square kilometers (approximately 1,200 square miles) and razed entire towns. Although officials ultimately blamed downed power lines and arson as the cause of most of the more than 400 individual fires, experts also argued that the intensity and speed of the bushfires was enabled by a prolonged period of drought and soaring temperatures of 47.2°C (117°F). Even well-trained, equipped, and prepared firefighters can be overrun by wildfires. Such was the case in 2013 when nineteen members of the Granite Mountain Hotshots crew died fighting a lightning-sparked wildfire in [Arizona](https://go.gale.com/ps/retrieve.do?resultListType=RELATED_DOCUMENT&searchType=ts&userGroupName=nhais_401&inPS=true&contentSegment=&prodId=GIC&docId=GALE|CP3208520179&it=r).

"Wildfires." *Gale Global Issues Online Collection*, Gale, 2019. *Gale In Context: Global Issues*, https://link.gale.com/apps/doc/CP3208520179/GIC?u=nhais\_401&sid=GIC&xid=41c5fbe9. Accessed 23 Jan. 2020.