
My NASA Data - Lesson Plans

Operation Earth: Wildfires



Overview

Students watch a 28-minute video on NASA's involvement in fighting wildfires. Students will answer questions related to NASA satellite missions, and how they are developing a predictive analysis of where wildfires are likely to be and how active monitoring could reduce their impact.

Learning Objectives

Understand what resources are available to scientists and how the information provided helps others with the challenges of wildfires.

Why Does NASA Study This Phenomenon?

NASA's satellite instruments are often the first to detect wildfires burning in remote regions, and the locations of new fires are sent directly to land managers worldwide within hours of the satellite overpass. Together, NASA instruments, including a number built and managed by NASA's Jet Propulsion Laboratory in Pasadena, California, detect actively burning fires, track the transport of smoke from fires, provide information for fire management, and map the extent of changes to ecosystems, based on the extent and severity of burn scars.

NASA has a fleet of Earth-observing instruments, many of which contribute to our understanding of fire in the Earth system. Satellites in orbit around the poles provide observations of the entire planet several times per day, whereas satellites in a geostationary orbit provide coarse-resolution imagery of fires, smoke and clouds every five to 15 minutes.

Source: [NASA Fire and Smoke \(https://www.nasa.gov/mission_pages/fires/main/missions/index.html\)](https://www.nasa.gov/mission_pages/fires/main/missions/index.html)

Essential Questions

What is the role of NASA in the research of wildfires?

Materials Required

Choose one of the following:

- [Operation Earth Wildfires Student Sheet PDF document](#)
- [Operation Earth Wildfires Student Sheet Google Doc](#)
- [Google Slides](#) (optional)

Technology Requirements

- Internet Required
- One-to-One (tablet, laptop, or CPU)
- One-to-a-Group

Procedure

This lesson is meant to bring out the main ideas of the video and enhance students literacy skills. Suggested methods for classroom use include asking students to work in pairs with one student recording, or assigning each student (or pair of students) one or two questions. Another option is to ask students to create a one-pager for a single question after the video and then posting the question for other students to see. You can also have students rotate to see all answers or fill their form (“jigsaw”).

The 28-minute video ["Operation Earth: Wildfires"](#) is packed with information, and each question is addressed at multiple points. Students may need access to the video after watching the first time to gather any missing information.

Students working independently online could complete this task, however more time may be needed if students are working together in a group.

If students are using printed copies, expand the area for written answers before copying them. Answers to the questions will vary. Questions may be edited as needed.

The [Google Slides](#) could be a different option. You can ask students to open the file and take notes on just one question for each slide while watching the video as a group. If students are sharing the file, avoid making separate copies for each student. Multiple students could share a single slide, and you can lead a discussion of the slides after the video.

Students:

NASA has joined the fight to prepare for and limit the damage from wildfires. Watch the video to learn how this is done.

[Video: Operation Earth: Wildfires](#)

Video

Operation Earth: Wildfires |

<https://www.youtube.com/watch?v=kzrHRLUHVCM&list=PLiuUQ9asub3TH1CCmWBeCtbLjflKVjqKI> |

Source: NASA Climate Change

Questions:

1. How does NASA study wildfires?
2. What contributes to the spread of wildfires?
3. What makes wildfires overwhelming and dangerous?
4. Who is at risk of wildfires?
5. What does NASA contribute to the fight against wildfire?
6. Who uses NASA data from wildfires and how does this data help them?
7. What are the benefits of NASA joining the fight against wildfires?
8. What can be learned from both wildfires and prescribed burns?

Answers:

Teachers who are interested in receiving the answer key, please complete the [Teacher Key Request and Verification Form](#). We verify that requestors are teachers prior to sending access to the answer keys as we've had many students try to pass as teachers to gain access.

Sources:

1. EO Kids - Smoky Skies and Satellites. (n.d.). NASA Earth Observatory. Retrieved September 26, 2022, from <https://earthobservatory.nasa.gov/blogs/eokids/smoky-skies-and-satellit...>
2. Gutro, R. (2021, December 9). NASA Covers Wildfires Using Many Sources. NASA. Retrieved September 26, 2022, from https://www.nasa.gov/mission_pages/fires/main/missions/index.html
3. Kunerth, M. (2022, May 24). NASA Makes 'FireSense'. NASA Applied Sciences. Retrieved September 26, 2022, from <https://appliedsciences.nasa.gov/our-impact/news/nasa-makes-firesense>
4. NASA Climate Change. (2020, January 1). Operation Earth: Wildfires. YouTube. Retrieved September 26, 2022, from

