



# Investigating Wildfires



**Summary:** A wildfire is an uncontrolled fire that burns through vegetation in a rural area. Learners use a geographic information system (GIS) to identify patterns in the location of wildfires in the tropics.

## Key Concepts

Combustion  
GIS  
Spatial patterns  
Wildfires in Tropics

## Software

Web-based GIS  
(Global Forest  
Watch)

## Instructional Objectives

Learners will be able to:

1. Apply concept of combustion and their effects on wildfires
2. Identify spatial patterns in wildfires using a Geographic Information System (GIS)

## Learning Outcomes

- Recognize patterns in the location of wildfires
- Evaluate the role of human-induced changes in the tropics which create the conditions for wildfires

## Real World Application

We can use GIS to help gain insights into the causes of wildfires and possible ways to prevent them.

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## 1. Lesson Overview

|                                 | Activity                                                                                                                                                                  | Innovation Skill                             |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <b>Introduction</b><br>(20 min) | Introduce the chemical reaction of combustion and the concepts of activation energy and chain reaction.                                                                   | Design Thinking (Empathize)                  |
| <b>Slides 1 – 11</b>            | Learners will be introduced to the conditions required for combustion and how it can become self-sustaining.                                                              |                                              |
| <b>Development</b><br>(80 min)  | Introduce the concept of GIS and use simplified examples to show how it can be used to gain insights to spatial patterns and correlations between different spatial data. | Data Science (Data Visualization)            |
| <b>Slides 12 – 21</b>           | Demonstrate the use of Global Forest Watch Fires (GFW-Fires) web-based GIS tool.                                                                                          |                                              |
|                                 | Direct learners to follow the instructions on the worksheet to recognize patterns in the locations of wildfires in Indonesia.                                             | Computational Thinking (Pattern Recognition) |
| <b>Conclusion</b><br>(20 min)   | Reflection of the lesson. Invite learners to share their insights and show how similar insights have been used to address the causes of wildfires in Indonesia.           | Social-Emotional Skills                      |
| <b>Slides 22 – 24</b>           |                                                                                                                                                                           |                                              |

