Lesson overview: In this activity, students study the history of a real wildland fire, the Lolo Peak Fire of 2017 in western Montana. They view and discuss a presentation and 2 short videos to learn how managers used information on weather, fuels, and topography to manage the fire. Then they identify patterns in weather data that are correlated with fire behavior. They synthesize day-by-day reports from the official records of the Incident Command (IC) Team and news articles to create podcasts on the fire’s progress. Finally, they interpret maps and slides in a presentation that shows the fire’s growth and the variety in its severity.

NOTE TO TEACHER: A more complex version of this lesson, which involves technical reading and creation of a video production, is available in the High School curriculum, Activity H10-1.

Lesson Goals: Increase students’ understanding of the

- interactions of weather, topography, and fuels as they influence fire behavior.
- ways in which fire managers use data, modeling, and experience to manage a wildland fire.
- variation in severity of a wildland fire.

Objectives: Given weather data, reports from an Incident Command Team, and news articles, students can

- explain why a wildland fire showed rapid spread at times and showed little or no spread at other times.
- synthesize information on the progress of a wildland fire into a podcast for a national audience.
- interpret maps and photos that illustrate the fire’s growth and severity.
Standards:

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**Teacher background:** From activities in Units II and III, students have gained a theoretical understanding of combustion and wildland fire behavior. In this activity, they apply their understanding to a real wildland fire, the Lolo Peak Fire of 2017 in western Montana. The fire began with a lightning strike on July 15, 2017, and was contained 87 days later, in early October. (“Contained” means that a fire is fully surrounded by control lines and other features that can be reasonably expected to stop its spread.) It burned more than 53,000 acres and cost approximately 48 million dollars. One firefighter died on the fire when he was struck by a falling tree. Two homes were burned. A major highway was closed for several days, and hundreds of residents were evacuated – some of them more than once.

A tremendous amount of information is available about the Lolo Peak Fire. You could use this activity as the basis for a research project and have students locate their own information and evaluate its quality, but that would be very time consuming. To help meet the objectives of the activity in a shorter time, we have selected a subset of the information available and packaged it in 6 Fire Reporting Packets, which students use to report on the fire at 6 different times while it was burning. The packets are available in the trunk or downloadable as zipped files, which are named FireReportingPacket... followed by a range of dates in yymmdd format. Information in the packets includes:

- **Narratives:** Excerpts from the official record of the fire as published on “Inciweb” ([https://inciweb.nwrg.gov/](https://inciweb.nwrg.gov/)). Inciweb is the official database for reporting on national emergencies such as fires, floods, and hurricanes. Each of these emergencies is managed by an Incident Command (IC) Team, whose members have extensive training and experience.

- **Articles** from local newspapers - the *Missoulian* and the *Ravalli Republic*. We selected news reports and guest editorials from scientists and other experts.

- **Statistics:** Daily reports of fire size, number of personnel on the fire, and estimated cost.
At the beginning of the activity, students review the Fire Environment Triangle, which was introduced in Activity M05 (the “matchstick forest” activity). Then they view a presentation about the origin of the Lolo Peak Fire and plans for managing it (WeaFuelsTopog_OpeningAndVideo.pptx). The presentation includes links to 2 short videos created by the IC Team shortly after the fire started. IC Team members in the videos describe their plans for managing the fire and the use of modeling to inform their plans.

After viewing the presentation, students work in 6 teams to examine data on weather and fire growth so they can develop explanations of why the fire behaved as it did at various times. They identify weather variables that influenced the fire’s biggest single run on August 19, 2017, and the variables that influenced it as it died down in early September. Then they explain their ideas to the class.

NOTE: Atmospheric inversions influenced the behavior of the Lolo Peak Fire and caused poor air quality throughout the region during the summer of 2017. This activity does not address smoke and inversions, but Activity M09 does. It explains the nature of inversions and challenges students to identify inversions during the time of a wildland fire and predict the resulting impacts on air quality.

This activity has two Assessment sections. In the first, each student team creates a 5-minute podcast on the progress of the fire during 1 of 6 time periods. The information needed for student reports is contained in the Fire Reporting Packets described above. Student reports must describe how weather, fuels, and/or topography influenced the fire’s growth (or lack of it) during that specific time period.

In the second assessment, which is much less formal, students explain maps and photos in a presentation that describes the fire’s progress (WeaFuelsTopog_ClosingAndVideo.pptx) and summarizes its severity.

If you are interested in exploring the history of other wildland fires or the current status of fires throughout the United States, consult some of these websites:

<table>
<thead>
<tr>
<th>Website</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://inciweb.nwcg.gov/">http://inciweb.nwcg.gov/</a></td>
<td>Information on the size, status, and other features of current fires throughout the United States</td>
</tr>
<tr>
<td><a href="http://www.nifc.gov/fireinfo/fireInfo_main.html">http://www.nifc.gov/fireinfo/fireInfo_main.html</a></td>
<td>National Interagency Fire Center – coordination and information for wildland fire programs nation-wide</td>
</tr>
<tr>
<td><a href="http://gacc.nifc.gov/">http://gacc.nifc.gov/</a></td>
<td>Geographic Area Coordination Center – a portal for each major geographic region in the United States. Content differs by region, but most sites feature regional news, maps, and other detailed information.</td>
</tr>
</tbody>
</table>
Materials/Preparation:

1. Download and prepare to give the “opening” presentation, which gives background on the Lolo Peak Fire (WeaFuelsTopog_OpeningAndVideos.pptx) at the start of the activity. This presentation includes links to two short (~3-minute) videos created by the IC Team in late July. Click on this icon (embedded in the slides) to start the videos. Here are the links, so you can preview the videos:

2. Download the “closing” presentation (WeaFuelsTopog_Closing.pptx), which you will ask the students to narrate. This is a review of the fire’s behavior and management.

3. Find the 6 copies (1/team) of the ledger-size display of fire weather and fire growth data in the trunk or have students view them electronically from WeatherGrowthTimelines.jpg or print 6 copies from WeatherGrowthTimelines_LedgerSize.pdf. (This document is designed for 11 X 17” (ledger size) paper. However, if that size of paper is not available, it will print OK on two pages of 8.5 X 11” paper.)

4. Find and display the poster-size display of fire weather and fire growth data in the trunk or display it from WeatherGrowthTimelines.jpg.

5. Find the Fire Reporting Packets in the trunk or make them available from zip files entitled FireReportingPacket... with a range of dates attached. There are 6 packets, one for each time period to be covered by a student report. The contents of the packets are described in Teacher Background above. If you are using pre-printed packets from the trunk, remove the Graphics printout from each. It is there for the High School version of this lesson (H10-1) but is not needed for this version.

6. Decide whether or not to use a student host for the National Weather Radio podcasts. If you decide to do this, explain to the student that he or she only needs to give a very short introduction of each presentation, and he or she will also be on one of the 6 reporting teams.

7. Decide on the format to be used for podcasts – (a) live but hidden, so the students can only hear the “broadcast”, (b) live but visible, so the students can see who is speaking and how the sound effects are produced, (c) pre-recorded, so the students can listen on their own. Set up whatever technology is needed.

8. Display the Fire Environment Triangle poster from Activity M05 in the classroom (FireEnvironmentTrianglePoster.pdf).

9. Print 1 copy/student or team: Handout M08-1. Podcast on the status of the Lolo Peak Fire.
Procedure:

Part 1 (1 day) – Background and introductory videos

1. Refer to the Fire Environment Triangle poster on display (FireEnvironmentTrianglePoster.pdf from Activity M05). Explain: We’ve studied the theory of combustion and fire spread. Now we’ll apply our knowledge to a real wildland fire, the Lolo Peak Fire, which occurred in western Montana in the summer of 2017. We’re going to use what we already know, and we’ll also pick up information from the experts who managed the fire. Then we’ll try to figure out why the fire actually behaved as it did.

2. Go through the “opening” presentation, which includes 2 short videos (WeaFuelsTopog_OpeningAndVideo.pptx):

Slide 1
Lightning started the Lolo Peak Fire on July 15, 2017. The lightning strike was just west of Lolo Peak in the Lolo National Forest. The Lolo Peak Fire was one of 68 new fires that started in the northern Rocky Mountain area that day, so managers and planners were very busy, and “resources” – firefighters, helicopters, airplanes, and equipment – were in high demand throughout the region.

Slide 2
The fire started within a wilderness area, so there was no road access. It was surrounded by dense forest to the south, west, and north. To the east, uphill from the fire, the forest gave way to steep, rocky ridges and mountaintops.

Slide 3
About 5 miles north of the fire, U.S. Highway 12 follows the wide, east-flowing drainage of Lolo Creek. The highway comes out of Idaho (to the west of this map) and goes through the town of Lolo (just off the map to the east). In Lolo, it meets U.S. Highway 93 and then goes north into Missoula. About 4,000 people live in Lolo. More than 100,000 people live in the broad Bitterroot and Clark Fork River valleys to the south, east, and north of the fire.
Managers and residents were worried about this fire. Why were people so worried? What problems or dangers do you think they were concerned about? Open discussion. Here are some points that could come up: There are a lot of people living near the fire. A lot of people use this area for recreation and enter the Forest from dozens of small roads. There are hundreds of homes, ranches, and businesses along the two highways. (How can the people and property be protected? How can people be contacted if they are camping in the wilderness?) The terrain is very rugged and inaccessible by road. Over much of the area, there’s continuous forest – so there’s no place for firefighters to go for safety if the fire starts a fast, dangerous run.

Big national crises, including fires, floods, and hurricanes, are usually managed by an Incident Command (IC) Team, a group of experts in handling wildfires and other emergencies. On July 21, management of the Lolo Peak Fire was assigned to a “Type I” IC team. Type I is the highest level of training and experience available in the United States, and Type I team members have worked together in emergency management for many years. Click the link to view the 3:12-minute video “Lolo Peak Fire Strategy and Tactics.” Explain: As you watch the video, jot down some of the speakers’ concerns. Are they the same ones we have identified? New ones? Do they make sense? After the video, discuss.

We’re going to try to figure out why the fire behaved the way it did over the 87 days when it was burning. Let’s review a little first, by applying what the IC team said in the video to what we know about the Fire Environment Triangle. First, fuels: Here are a few photos of fuels in the area. Low-elevation forests have a lot of ponderosa pines and more openings than middle-elevation forests. Middle-elevation forests have a mixture of tree species, including a lot of dead lodgepole pines – both standing snags and fallen logs. High-elevation forests have abundant subalpine firs of all ages and sizes. Do you remember what the Fire Behavior Analyst in the video said about subalpine firs? When subalpine firs burn, they produce a lot of embers that are likely to start spot fires – possibly a long way outside the fire’s perimeter.
The video didn’t talk much about weather, so let’s look at additional information that was in their official “Incident Decision” — the 48-page document that explained how they planned to manage the fire. The report emphasized that strong winds and summer thunderstorms usually occur in the middle of August, and they often come from the west. This diagram shows the speed and direction of winds on July 20. On that day, the wind was coming out of the west — that is, it was coming from the background straight toward us. Look how it spills forward, down the mountainsides. How strong are these winds? The green arrows predominate; they show wind speeds from 8 to 17 mph (measured 20 ft above the ground). This is enough wind to push a steady surface fire with some torching. The diagram shows pockets of winds around 20 mph and even one steep slope with downhill winds of more than 30 mph. These winds are strong enough to knock down trees, especially the many standing dead ones in the Lolo Fire area.

Here’s a topographic map of the fire area. The red line shows the perimeter of the fire when the IC team made the video. The fire was staying within a deep, north-south drainage. Strong winds from the west would push it up toward Lolo Peak. Remember what the topography is like up there?

The topography is steep, with lots of rocky ridges and barren openings. What are the fuels like? Fuels are patchy and very sparse along the ridge tops. What will the fire do when strong westerly winds arrive? Surface fire probably can’t spread over the ridge to the east because surface fuels are so patchy. There’s a lot of subalpine fir at these elevations though. A strong westerly wind could cause these to torch, loft thousands of embers to the east, and ignite multiple spot fires.
But the IC Team expected the fire to move north, into the wide drainage that contains Highway 12. And over the next 2 weeks, it began to do that. What’s going to happen when the fire moves out into that valley and then strong westerly winds arrive? The wind is likely to push the fire very rapidly through that valley, toward the town of Lolo.

Click the link to view the 2:58-minute video “Fire Science on the Lolo Peak Fire.”

3. Explain: Now that we know a how experts planned for the fire and predicted what it would do, we’re going to work in teams to figure out why it did what it ACTUALLY DID. We’ll look at information on weather, topography, and fire spread.

4. Set up 6 student teams. Give each team a copy of the weather and fire growth graphs (FireWeatherAndGrowth_LedgerSize.pdf) or provide a way for them to view it electronically from WeatherGrowthTimelines.jpeg. The top of the graph display is shown here:

![Graph showing weather and fire growth data.](FireWeatherAndGrowth_LedgerSize.pdf)

5. Refer to the poster-size copy of this file from the trunk or projected from WeatherGrowthTimelines.jpeg. Explain: Each team has a copy of these graphs. They show some of the data recorded during the fire each day, plus information on how much the fire
grew each day. Notice that the information on wind incorporates BOTH weather AND topography, because it is color-coded to show you what direction the wind is coming from. In your team, discuss the graphs and come up with an explanation of:

- how weather and topography contributed to the big fire run on August 19
- how weather and topography slowed the fire’s spread in early September

6. Have 1 member of each team give the team’s explanation of the big fire run on August 19; the 6 teams may have different explanations, which would be great! Have them refer to the poster version of the graphs on display. It is not easy to find a clear connection between weather and fire growth, but there are clues in the data: Think about the ALIGNMENT of strong westerly winds with east-west drainages that was referred to in the video “Lolo Peak Fire Strategy and Tactics”. The most useful graphs are the two that show wind speed and direction.

7. Have a different student from each team explain the decline in fire growth that occurred in early September. Students probably won’t have much trouble finding the time when the fire died down: It is associated with cooler temperatures, high humidities, increased cloud cover, and precipitation – all of which occurred in early September.

**Part 2 (1-2 days) – Podcast assessment:**

1. Explain: The National Weather Service, which provides weather reports and forecasts for the entire United States, has its own radio station, National Weather Radio (http://www.nws.noaa.gov/nwr/). The station provides forecasts and warnings of severe storms, but it also features news stories about weather-related events. Weather experts at the station have heard that there’s a wildfire brewing in western Montana – the Lolo Peak Fire – that could be of national interest. They’ve invited our class to report on this fire in a series of 5-minute podcasts, which will be broadcast on Saturday evenings. We’re going to respond to their invitation by working in teams to produce podcasts for 6 different time periods during the Lolo Peak Fire.

2. Explain: **You do not have to do the detective work** for this report. That might be fun, but you’d have to sift through hundreds of websites and news articles to do it, and you don’t have enough time. Instead, your team will use a Fire Reporting Packet for your time period, which contains everything you need.

3. Give each team their packet.

4. Explain the role of the student host if you plan to use one.
5. Give each student or team a copy of **Handout M08-1. Podcast on the status of the Lolo Peak Fire**. Assign a time period to each team from this table. Go over the assignment and answer questions. Explain the deadline. Consider making it short (1 class period). That may not be much time, but that’s journalism! Then have the class listen to the podcasts. If you record them, this could be done individually.

**Part 3 (1 day) – Slide show assessment:**

6. Ask: How severe do you think this fire was? Do you think it killed most of the plants and animals inside the fire perimeter? **Discussion.**

7. Go through the “closing” presentation (**WeaFuelsTopog_Closing.pptx**). Have students narrate most of it, keeping the discussion informal, encouraging students to use what they’ve learned and also a little imagination. Have each student speak at least once. The handout notes below give information on the slides, which you can use to prompt speakers and add ideas that they may not know about.

**Slide 1**

Explain: Now that you’ve studied the IC Team’s reports, you can explain maps and photos from the fire. Put yourself into the position of the Incident Commander or the Fire Behavior Analyst or a firefighter, use a little imagination, and share some thoughts about the maps and photos as we go along. What are your thoughts about them? (Comments on all photos in this presentation go clockwise from left.) The left photo shows multiple hot spots within the very steep, deep valley where the fire originated. The right photo shows convection columns from 2 sides of the fire converging above the valley. There may be firebrands in that column, and it could pull the 2 sides of the fire together underneath. How safe would fire crews be in the valley below?

**Slide 2**

Here’s the last map we looked at, which was made when the fire hadn’t yet spread into the east-west-oriented Lolo Creek drainage along Highway 12. What’s going on in the 3 photos? Crews are removing fuels from a road, which is probably a primary control line. Fire engines are in position near developed areas in case they have to put out structural fires. (Structural firefighters have different equipment and training from that of wildland firefighters.) Wildland fire staff meet for a briefing (“morning briefings”
are held each morning before crews head out for day shift work). What kinds of jobs do these people have? The staff on a big fire includes the Incident Commander and other IC Team members, safety specialists, ground crews and heavy equipment operators, pilots and staff who manage helispots and aircraft, fire behavior specialists, fire modelers, ecologists who know the land and vegetation and locations of weedy areas, people who provide information to the public, and people who find and order equipment and crews – and make sure they get paid!

Here’s the fire map a week later. What does it show? It shows the big, 4-mile fire run that occurred on August 19. What’s going on in the photos? Sheriff’s deputies are getting information about areas that need to be evacuated, roads that are closed (and must be patrolled so people don’t go in and possibly be trapped by the fire), and locations that have already been evacuated (and must be patrolled so looters don’t take advantage of the situation). The convection column/smoke plume from the fire’s big run looms above a home. (The photo was taken from a location nearly 15 miles from the fire.) The smoke is rising high enough to punch through the cloud layer above. The fire’s rapid run on August 19 continued into the night, so viewers from 10-15 miles away could see flames hundreds of feet above the crowning fire.

Here’s the map from the next week. What has the fire been doing? There was gradual fire spread to the west, and the fire began to spread south along the Highway 93 corridor. Some of the new red patches along the Highway 93 corridor are probably from “burnouts” used by firefighters to reduce fuels between the fire and control lines. Notice that the fire has not (yet) made a major run eastward across the rocky, barren top of the Bitterroot Divide. Describe the photos: The view of the smoke column is not from a regular campground; it is from the fire camp, where the IC team, staff, and firefighters set up individual tents for sleeping. A big fire camp also contains showers (brought in by semitrailer), a kitchen (also brought in by semi) and dining tent, and a few tents for meeting and planning. Crews are “burning out” fuels to reduce the fire’s intensity as it comes closer to developed areas and control lines. Flames in this photo are mostly less than 3’ high, whereas they were hundreds of feet high during the August 19 run.
Here’s the map two weeks later. What has happened? The fire has spread more to the south. In spite of a retardant line being maintained along the Bitterroot Divide, the fire has crossed the Divide in one location and spread eastward. Some of the fire growth during this period was “burned out” by fire crews to reduce fuels between the fire and control lines. Describe the photos: Trees have been cut in this forest stand and low branches may have been pruned off, so there are openings between tree crowns and few ladder fuels. This makes crown fire unlikely. However, slash remains on the ground, and it must be burned or removed to reduce the potential for severe surface fire. A plane unloads retardant on the fire. Recall that several of the IC reports talked about thousands of gallons of water and retardant being used. Crews burn out between a road and the fire, causing some torching in the stand behind the truck.

Here’s the final fire perimeter. Explain the map and photos: There was little fire spread during this time, and some of that was in burnouts by fire crews. On October 9 the fire was declared fully contained (meaning it was completely surrounded by line and/or areas with no fuel, so it was not going to spread further). Crews were mopping-up (meaning that they were extinguishing spots still burning in the interior of the fire, especially near control lines). Suppression repair work was being done (meaning that logging slash was removed or pulled over the bare soil to reduce erosion; and culverts were cleaned out or rebuilt so spring runoff would flow through them).

Here are a few photos taken during the last month of the fire. How would you describe the fire severity? The lower-left photo shows a variety in severity. The landscape is a “mosaic” – or “patchwork” that ranges from green forest (unburned or very lightly underburned) to scorched (the orangeish edges of black patches) to completely burned (blackened trees, crowns consumed). The top photo is a close-up of a severely burned area; notice there is no soil cover. In contrast, the photo on the right is a close-up of an area with burned and scorched fuels on the ground and some tree scorch. Most of the vegetation on this site will survive, and dead foliage will fall from the scorched trees, further protecting the soil from erosion.
Here’s a map of fire severity, described in terms of tree mortality. (Severity can also be described in terms of effects on soil—which we’ll study in Activity M10). Tree mortality is measured as loss of BASAL AREA: Basal area is the area of the ground covered by the boles of living trees (as measured 4.5’ above the ground). Think of it as the space covered by tree trunks if you bundled them all together into one big tree trunk. Ask: How well does this map match your expectations about fire severity? How well does it match the news coverage about the fire? Discussion. People are sometimes surprised to learn that most wildland fires produce a mosaic of severities. Much of the area inside a fire’s perimeter may be unburned or show less than 25% tree mortality—and the green color on this map shows a lot of such low severity in green. The map shows relatively little area of moderate severity (yellow-orange); it occurs mainly along the edges of the high-severity areas. News media tend to cover a forest fire only when it does something spectacular and kills a lot of trees, like the Lolo Peak Fire’s huge run that occurred on August 18-19. Much of the area in that run was burned severely and is shown here in red.

Evaluation:

<table>
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<tr>
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<th>Excellent</th>
<th>Medium to Poor</th>
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<tbody>
<tr>
<td><strong>Podcast assessment:</strong></td>
<td></td>
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<tr>
<td>Structure: Introduction,</td>
<td>All present</td>
<td>Not all present</td>
</tr>
<tr>
<td>Transitions, Conclusion, and</td>
<td></td>
<td></td>
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<tr>
<td>Creativity</td>
<td></td>
<td></td>
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<tr>
<td>Length and sound effects</td>
<td>The presentation was close to 5 minutes long (give or take 15 seconds) and included 3 relevant sound effects that enhanced the podcast.</td>
<td>The presentation was more than 15 seconds less than or greater than five minutes. The presentation failed to include 3 or more sound effects or included sound effects that were irrelevant or distracting.</td>
</tr>
<tr>
<td>Information about how weather,</td>
<td>Accurate, based on information in packet (or other factual information with sources documented)</td>
<td>Inaccurate or not present; if based on information not in packet, not documented.</td>
</tr>
<tr>
<td>topography, and/or fuels</td>
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<td>affected fire spread</td>
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<td>Human interest angle</td>
<td>Present, credible, and engaging</td>
<td>Not present, not credible, or not engaging.</td>
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**Slide show assessment:**

| Interpretation of map and/or photo in presentation | Contributed accurate and imaginative thoughts | Contributions were inaccurate – or did not contribute. |
Handout M08-1: Podcast on the status of the Lolo Peak Fire

The National Weather Service has invited our class to report on a fire that is burning in western Montana, the Lolo Peak Fire. They will air six podcasts from our class on National Weather Radio (http://www.nws.noaa.gov/nwr/). Each podcast will cover one of the time periods listed here. Circle the time period assigned to your team.

<table>
<thead>
<tr>
<th>Team</th>
<th>Time period (2017)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>July 15 through July 29</td>
</tr>
<tr>
<td>2</td>
<td>July 30 through August 12</td>
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<tr>
<td>3</td>
<td>August 13 through August 19</td>
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<td>4</td>
<td>August 20 through August 26</td>
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<td>5</td>
<td>August 27 through September 9</td>
</tr>
<tr>
<td>6</td>
<td>September 10 through October 9</td>
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</table>

Your team’s Fire Reporting Packet contains all of the information you need:

- **Narrative** contains excerpts from the IC Team’s narrative report for each day.
- **Statistics** contains daily reports of the fire’s growth and size, the number of personnel on the fire (if reported), and the current cost estimate (if reported).
- **Articles** contains one or more newspaper articles about the fire and related issues.

You may look for additional information, but – if you use it – you must explain your source.

If you find a term that you do not understand, look it up. You may find it in the official glossary of the National Wildfire Coordinating Group (https://www.nwcg.gov/glossary/a-z).

Here are the requirements for your podcast:

1. Make it exactly 5 minutes long, give or take 15 seconds. If you make it longer or shorter, you will mess up the National Weather Radio’s daily programming.

2. Tell your audience about the fire’s recent behavior and how topography, fuels, and/or recent weather have affected it.

3. Give the audience some reason to care about the fire – some human-interest angle. For example, perhaps they can identify with local residents who are worried about safety and evacuations. Perhaps they can identify with problems posed by highway closures, risks to firefighters, or effects on the local economy. Perhaps they are concerned about the fire’s effects on plants and animals. Perhaps you can persuade them that the fire has national significance because of its size or expense, or because it is an example of other such emergencies.

4. Include at least three appropriately placed sound effects.

It will help to have a written outline or script before you present/record.

Be as creative as you can. This is your opportunity to be artistic, unique, and show that you can apply what you know about wildland fire!