



# 1. Visiting Wildland Fire in the Sierra Nevada

**Lesson Overview:** Students view a narrated photo presentation that shows wildland fires and some of the plants and animals they are going to learn about. The photos and narrative are at the end of the lesson and on a PowerPoint. During the presentation, students record their observations about fire behavior. Afterwards, they discuss their observations and feelings about the presentation. The presentation’s narrative is brief because this activity is meant to orient the students and let them express their feelings about fire – not to teach science content.

**Subjects:** Science, Writing, Speaking and Listening, Arts, Environmental Education  
**Duration:** one half-hour session  
**Group size:** Whole class  
**Setting:** Indoors  
**New FireWorks vocabulary:** *fire behavior, wildland, wildland fire*

**Lesson Goal:** Increase students’ understanding that wildland fire is a complicated process that can benefit ecosystems.

**Objectives:**

- Students can draw different kinds of fire behavior.
- Students can write about similarities and differences among kinds of fire behavior.
- Students can describe their feelings about wildland fire.

Standards		1st	2nd	3rd	4th	5th
CCSS	Writing	8	8	8	8	8
	Speaking and Listening	2,3,4,5,6	2,3,4,5,6	2,3,4,6	2,3,4	2,3,4
	Language	1,2	1,2	1,2	1,2	1,2
NGSS	Structure and Property of Matter		PS1.B			
	Interdependent Relationships in Ecosystems		ETS1.B			
	Weather and Climate			ESS3.B		
	Earth’s Systems: Processes that Shape the Earth				ESS3.B	
EEEGL	Strand 1	A,C,E				A,C,E
	Strand 2.2	C				C

**Teacher Background:** If you walk through a recently burned area, you might encounter some places where all the vegetation looks dead and other places that have a lot of green vegetation left. You might see deep holes in the ground where roots have burned away, and you might see patches of leaf litter that is just lightly scorched. Fire behavior and fire effects vary with

topography, weather, and vegetation. As a result, some patterns are typical of certain kinds of landscapes and vegetation. For example, steep hillsides are more likely to support fast-moving fires than flatlands or moist ravines, and forests with trees close together are more likely to support crown fires (spreading through the tree canopy) than forests where the trees are far apart. As an introduction to the study of wildland fire, this photo presentation highlights variation in fire behavior and its relationship to specific plants and animals.

This version of FireWorks focuses on ecological communities in the Sierra Nevada— forests dominated by conifers. These communities are often called lower and upper mixed conifer or lower and upper montane. See the **Introduction** (pp. ii-iii) for an overview of these Sierra Nevada ecological communities.

If you plan to teach the units on fire ecology (Units V and VI), consider having your students adopt a plant, animal, or fungus NOW, so they have time to prepare and you can spread their presentations out over several days instead of having them all at once. See Activity 8, “Who Lives Here: Adopting a Plant, Animal, or Fungus” for further details.

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#### **Materials and preparation:**

- Load photo presentation *E01\_M01\_VisitingWildlandFire.pptx*
- Copy Handout E01-1 for each student
- Make a sketch of Handout E01-1 on the board—all three sections—or project it
- Set up flipchart or other media for recording questions and feelings. You’ll want to look at this list at the end of the unit on fire: Lesson E16, “Revisiting Wildland Fire”
- Have students get out crayons or markers, clean paper, and pen or pencil.

#### **Procedure:**

1. Explain to students: They will watch a presentation that shows fires in *wildlands*. You will stop several times during the presentation so they can discuss what they see and make drawings to record their observations. After the presentation, you will ask them to describe what they have observed and also describe their feelings about the presentation.
2. Give out copies of Handout E01-1. Explain that you’ll let students know when you’d like them to draw.
3. Show the presentation. You can use the narrative in the presentation notes below or give your own narrative, but keep it brief. Welcome students to discuss and ask questions about what they see. Record the questions on a flipchart or other medium, but don’t necessarily try to answer them during the presentation. Instead, explain that the class will seek the answers during this unit on *wildland fire*.
4. When you show Slide 1, the first photo that shows *fire behavior*, pause. Explain that it is time to record some observations so they can learn how wildland fires vary. Do the first one (A) together, and then they will do 3 more on their own. Ask the students to look carefully at the flames in the photo and describe them to the class. (How long are the flames? What

parts of the plants are they burning? What “layer” of vegetation is burning – just material on the ground? ... only the tree tops?) On the board, sketch the flames shown in the photo.

5. Ask the students to make their own sketches of the fire behavior in Part A on their handouts. They should draw flames only in the parts of the vegetation that they see on fire in the photo. After they’ve done so, continue with the presentation.
6. Stop at the cues for sketching fire behavior (slides 8, 14, and 21) and have students sketch the fire behavior on their handouts (B, C, and D).
7. Prepare for writing assignment: Ask the students to look at the first two kinds of fire behavior (A and B). Write “Same” and “Different” next to them, and ask students to describe to the class some ways in which the two kinds of fire are similar and different. Note some of their comparison/contrast phrases on the board.
8. Ask the students how they feel about the fires that they saw in the presentation. Record their “feeling words” on a flipchart or other medium so you can discuss them again at the end of the curriculum. Explain that people’s feelings often differ without being “right” or “wrong,” so all of the feelings from class members are valid and deserve respect.
9. Keep the flipcharts that list students’ questions and feelings. You will use them for Activity 16, “Revisiting Wildland Fire.”

**Assessment:** Ask the students to write on the handout or a clean sheet of paper:

1. At least one sentence about how fires B and C are the same.
2. At least one sentence about how fires B and C are different.
3. At least two words that describe their feelings in response to the photo presentation.

**Evaluation:**

	Present	Not-Present
1. Fire Similarity Sentence(s)		
2. Fire Contrasting Sentence(s)		
3. Fire Feelings		

## Slides and Narrative for *E01\_M01\_VisitingWildlandFire.pptx*

Slide 1



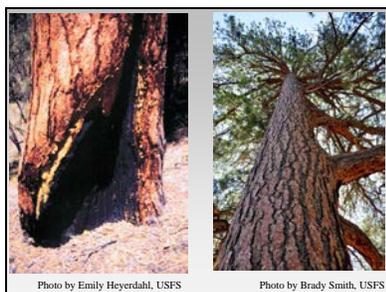
Here is a fire burning in a forest of the Sierra Nevada. *Observe and sketch it (A)*

Slide 2



This is what the land looks like after that kind of fire.

Slide 3



Here are some plants that live in the forest after fire:  
... A ponderosa pine tree that has survived many fires

Slide 4



... Mariposa lily, a wildflower that survives fire and then grows really well.

Slide 5



... A California black oak that sprouts after fire.

Slide 6



Here are some animals that live in the forest after fire:  
... Pileated woodpecker, which loves big, old trees that have survived fires long ago.

Slide 7



... Western gray squirrels that eat the seeds of trees that have survived the fire.

Slide 8



Here is another kind of fire in the Sierra Nevada. *Observe and sketch it (B).*

Slide 9



This is what the land looks like after that kind of fire.

Slide 10



Or this.

Slide 11



Here are some plants and animals that thrive after that kind of fire:  
... A beetle with heat sensors, so it can find fires and lay its eggs in just-burned trees.

Slide 12



... A black-backed woodpecker, which arrives soon after the fire to eat the beetles.

Slide 13



... Deer brush, whose seeds germinate after fire cracks open its hard seedcoats.

Slide 14



Here is another kind of fire in the Sierra Nevada. *Observe and sketch it (C)*.

This is a mixture of the two kinds of fire you've already observed. Many of those plants and animals can live here after fire.

Slide 15



Fire behavior and fire effects vary with topography, weather, and vegetation. Here are examples of fire behavior fires in the Sierra Nevada.

Slide 16



Slide 17



Slide 18



Slide 19



Slide 20



Slide 21



Fires in our forests can burn for a long time after the flames have passed. They may burn in tree trunks, roots, or in the soil itself.

Here is what a fire may look like after most of the flames have moved on (left photo). *Observe and sketch it (D).*

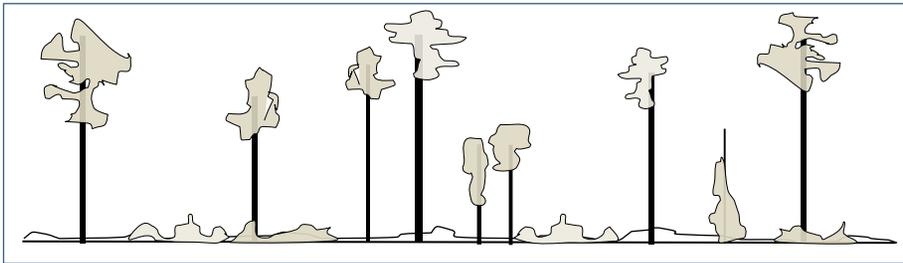
Wildland fires cause changes that last a long time, sometimes for hundreds of years. We'll learn more about all kinds of fire in the activities to come.

# Handout E01-1.

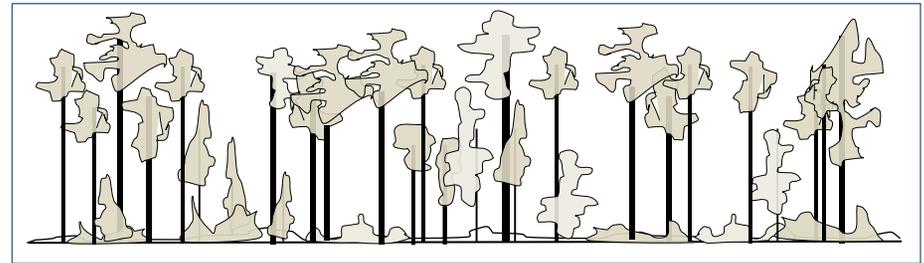
Name \_\_\_\_\_

1. Color each sketch to show what part of the forest is burning (for example, soil, surface plants, or tree tops). Add a few words to describe fire behavior if you wish.

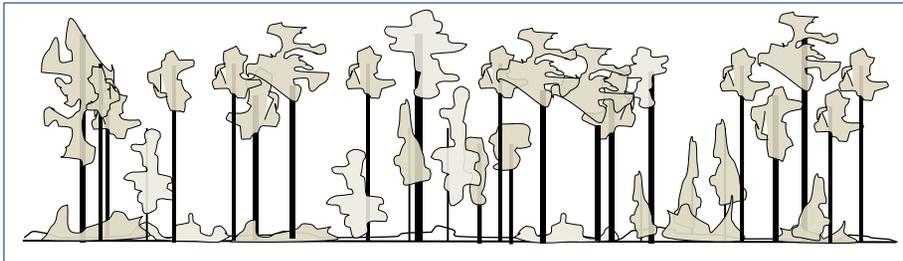
A.



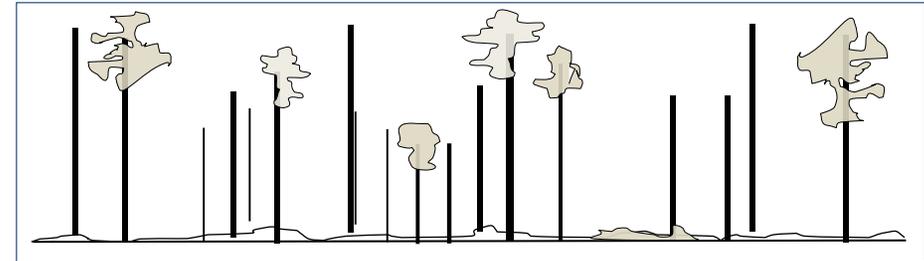
C.



B.



D.



2. Write:

At least one sentence about how fires B and C are the same.

At least one sentence about how fires B and C are different.

At least two words that describe their feelings in response to the photo presentation.