

Burning Issues Presentation @ VEMA November 2009

Unit Author

First and Last Name	Debbe Creamer
School District	Dinwiddie
School Name	Dinwiddie Junior High School
School City, State	Dinwiddie, Virginia
email address	dcreamer@dcpsnet.org

Unit Overview

Unit Title



Is Fire Good or Bad?

Unit Summary

The student will research, through interactive computer simulation software, two different ecosystems looking for details on how wildfire affects the habitat and sustainability of life. The student will watch a short video picking up descriptive words to include in his/her research paper. The student will make a list of benefits and hazards of wildfires. The student will write a four- or five-paragraph paper on wildfire citing many examples.

Subject Area

The student will research and write a short research paper on the benefits and/or hazards of a wildfire.

Grade Level

Sixth Grade

Approximate Time Needed

7 45-minute classes.

Unit Foundation

Habits of Learning Taxonomy

Bloom= remembering, understanding, analyzing and evaluating. Marzano= 2, 3, 4. Costa and Kallick= 1, 3, 4, 5, 9 and 15.

Targeted Content Standards and Benchmarks

6.2 The student will listen critically and express opinions in oral presentations.

- Distinguish between fact and opinion.
- Compare and contrast viewpoints.
- Present a convincing argument.
- Paraphrase what is heard.
- Summarize what is heard.
- Use grammatically correct language and vocabulary appropriate to audience, topic, and purpose.

6.5 The student will read and demonstrate comprehension of a variety of informational selections.

- Identify questions to be answered.
- Make, confirm, or revise predictions.
- Use context to determine meanings of unfamiliar words and technical vocabulary.
- Draw conclusions and make inferences based on explicit and implied information.

- e) Organize the main idea and details to form a summary.
- f) Compare and contrast information about one topic contained in different selections.

6.6 The student will write narratives, descriptions, and explanations.

- a) Use a variety of planning strategies to generate and organize ideas.
- b) Establish central idea, organization, elaboration, and unity.
- c) Select vocabulary and information to enhance the central idea, tone, and voice.
- d) Expand and embed ideas by using modifiers, standard coordination, and subordination in complete sentences.
- e) Revise writing for clarity.

6.7 The student will edit writing for correct grammar, capitalization, punctuation, spelling, and sentence structure.

- a) Use a variety of graphic organizers, including sentence diagrams, to analyze and improve sentence formation and paragraph structure.
- b) Use subject-verb agreement with intervening phrases and clauses.
- c) Use pronoun-antecedent agreement to include indefinite pronouns.
- d) Maintain consistent tense inflections across paragraphs.
- e) Choose adverbs to describe verbs, adjectives, and other adverbs.
- f) Use correct spelling for frequently used words.

Student Objectives/Learning Outcomes

The student will investigate the ecological significance of fire. The student will research plant and animal species that depend on forest fire and will determine interrelationships. The student will write, revise and publish a 4-or 5-paragraph position paper. The student will be able to understand and analyze a problem, research two sides of a problem, evaluate which is better and write a convincing solution to the problem.

Curriculum-Framing Questions

Essential Question

How does Change Affect the Future?

Unit Questions

Do wildfires have a purpose? If so, how are they beneficial?
 How does fire affect animal homes? Food? Life cycle?
 How does fire affect plants and trees?
 How does the soil benefit from wildfires? How is the soil harmed by wildfires?
 What happens if there are no wildfires?

Content Questions

What is a wildfire?
 How do wildfires start?
 What is destroyed in a wildfire?
 What items in the ecosystem need fire?

Assessment Plan

Assessment Timeline

Before project work begins	Students work on projects and complete tasks	After project work is completed
<p>K-W-L Chart</p> <p>Students develop a class K-W-L chart about wildfires and then create an individual K-W-L in their journals. Students return to these throughout the unit to add additional questions and new learning. The teacher reviews for understanding and to monitor progress.</p>	<p>Graphic Organizers</p> <p>Students will complete a number of graphic organizers prior to writing their rough draft. The students will be given new vocabulary allowing them to improve their word choices for their final draft. The teacher will monitor how well the student completes the graphic organizers and the improvements displayed when rewriting the rough draft.</p>	<p>Research Checklist</p> <p>Students use the checklist to guide them through the research process. Teachers ask students to bring the checklist to conferences to monitor progress and allow students to ask questions. Teachers use the checklist to assess student's research skills.</p>

Assessment Summary

A variety of student-centered assessments are used in the *Is Fire Good or Bad?* unit. These assessments help the student and teacher set goals; monitor student progress; provide feedback; assess thinking, processes, performances, and products; and reflect on learning throughout the learning cycle.

Project Description

Communities and ecosystems are constantly changing, evolving through the process of succession (one community reacting to and being replaced by another.) Fire, similar to floods, earthquakes, storms, etc. can be viewed as one means of promoting changes in an ecosystem. Almost all environments are impacted by fire. In order for a species to survive, it must adapt to natural forces such as temperature extremes, floods or fires. To survive a wildfire, most plants have adaptive traits or abilities that allow them to reproduce or regenerate after the fire. Most animals will either flee a fire, or in the case of burrowing animals, move deeper underground. These are adaptive traits. What happens to the forest ecosystem in a wildfire? While there is no easy answer to the question, "Is fire good or bad?", your job is to choose a position and provide evidence based on your recent research with the Burning Issues software. Discuss both the positive and negative impacts. Include what is lost and what is gained.

Unit Details

Prerequisite Skills

The student needs to have a basic concept of what makes an ecosystem. The student needs to know how to write a well thought out sentence. The student needs to know how to summarize a small amount of information.

Instructional Procedures

Introduce the unit with the following sound effect:

<http://www.a1freesoundeffects.com/popular12008/firetrucksiren.mp3>

The students will begin with a K-W-L chart using the topic "Wildfire" and will add information to this graphic organizer as they progress through this unit. The teacher will define the term "wildfire" and explain that this does not include fire for cooking or fire for heating purposes. Then, the teacher will have the students describe (in their writing journals) "What would happen if there were a wildfire near the school?" "What would we lose?" "What would we gain?" Share journal entries with a partner. Class members will make a list of items mentioned in their journals on the SmartBoard.

The teacher will explain to the students that they will be exploring two ecosystems, read about how fire impacts these two environments and record their information on the handout. The teacher will demonstrate how to navigate through the Burning Issues software and distribute the handout for the Southern Pines ecosystem. The class will move to the computer lab and begin collecting data from the Burning Issues Southern Pines ecosystem.

On the second day, the students will work to finish taking notes on the animal and plant species found in the Southern Pines ecosystem. During the last fifteen minutes of the class period, the students will share/compare their notes with a classmate's notes. The students will finish by clicking on the fire and following the directions on the screen. The students will experiment with wind conditions and moisture levels to create the correct conditions for a prescribed burn. The students will be exposed to some of the equipment a forester uses in a prescribed burn.

On the third day the students will return to the computers and explore the Chaparral ecosystem recording the effects of a fire on this habitat. The students will complete their graphic organizer on the fourth day and click on the fire. This simulation will provide them with the problem of choosing the ideal building site on a hillside. Additionally, the students will choose the external materials for a house that would provide the best protection from a wildfire.

On the fifth day, students will determine their position on the question: "Is fire good or bad?" and begin to record their research evidence on a graphic organizer. Using their research notes, The teacher will instruct the students in writing their first main paragraph using the hamburger graphic organizer. The students will work independently and begin to write a paragraph supporting their position.

On the sixth day, the students will construct second main idea paragraph and add an introductory paragraph. If time permits they will add a concluding paragraph and share with their team mate.

On day seven, the teacher will discuss the use of strong words. As students proof read their writing, they will highlight the words for describing good or bad. The teacher will show the 10 minute video titled, "Two Sides of Fire" and point out during the video presentation, the different words used in the video to describe "good" and "bad." The students will have a T-Chart to record the "good" words and the "bad" words. They will use this list to edit their paper and insert or replace stronger words where

appropriate. For homework, the students will write their final paper.

Accommodations for Differentiated Instruction

Resource Students	Students may be paired for this unit. Teacher or Aide may help in navigating the software program and assist in choosing the words to record on the graphic organizer.
Nonnative English Speakers	Much of the work may be done in pairs or as a whole classroom assignment. Students may be paired with English proficient students to complete the writing assignment, if necessary.
Gifted Students	There are two additional ecosystems to explore, each having additional activities once the students click on the fire. These activities are available if the students finish early but these activities are not being used part of the unit to write the paper.

Materials and Resources Required For Unit

Printed Materials	Burning Issues handouts: Southern Pines Animal Sheet, Southern Pines Plant Sheet, Chaparral Animal Sheet, Chaparral Plant Sheet, Write Web Graphic Organizer, Good vs Bad.
Supplies	None required
Technology - Hardware	TV with VCR, Computer, Document camera, SmartBoard, Data Projector
Technology - Software	<i>Burning Issues</i> software
Internet Resources	None Needed
Other Resources	Video – <i>Two Sides of Fire</i>

Graphic organizers can be found at the following website: <http://www.eduplace.com/graphicorganizer/>

Cluster/word web might be used at the beginning to web a student’s thoughts about fire.

Cluster/word web 1 is a great one to sort the information into good and bad ideas.

Spider can be used to synthesis the information into good and bad with detailed examples from the research project.

Persuasion map can be used to help organize the pre-paragraph ideas.

Sandwich is the same as the hamburger model, helping the students to form a paragraph with examples.

T-chart is used when the students watch the video and develop better vocabulary for describing “good” and “bad” effects of fire on a habitat.

To request more information about Project Learning Tree and Burning Issues, contact:

Lisa Deaton, Forest Education Specialist

Virginia Project Learning Tree State Coordinator

Virginia Department of Forestry - 2229 East Nine Mile Road - Sandston, VA 23150

804-328-3031 FAX 804-328-3033 lisa.deaton@dof.virginia.gov

Southern Pine

Animal	Describe Benefit or Hazard of Fire
Blue Jay	
Red Wolf	
Gray Fox	
White-Tailed Deer	
Golden-Silk Spider	
Bobcat	
Monarch Butterfly	
Pine Warbler	
Cougar	
Pine Snake	
Black Bear	

Southern Pine

Plant	Describe Benefit or Hazard of Fire
Longleaf Pine	
Greenbriers	
Wiregrass	
Saw-Palmetto	
Turkey Oak	
Wax Myrtle	

Click on fire and **listen to video.**

What animal is discussed that thrives on the burning of trees?

Why do people prescribe a burn?

What two items are you trying to eliminate?

What is the secret code? _____

Southern Pine

Animal	Describe Benefit or Hazard of Fire
Blue Jay	Adults get away, nest may survive if it is in crown, can see insects (food supply) better because fire clears out undergrowth and new plants are able to grow.
Red Wolf	Den is in a stump or hollow log and may be burned in a fire, eats rabbits and rodents – need to check on their survival for food needs.
Gray Fox	Can out run a fire, food supply is burned, den in hollow log or cave, can burrow underground, eats many things.
White-Tailed Deer	Fast runners so it can escape a fire, cool fires will kill some vegetation allowing deer to browse better, food supply improves with new plant growth.
Golden-Silk Spider	Lays eggs on back of leaves, fires open area allowing the spider to trap more insects, will survive fire if it isn't too hot.
Bobcat	Adults escape fires, their prey (rabbits and small animals) will come back, den in hollow logs or caves.
Monarch Butterfly	Caterpillars feed only on milkweed plant, adults fly away, hot fires destroy milkweed plants and butterflies can't lay eggs on the caterpillar's food source.
Pine Warbler	Adults and nests survive cooler fires, nests up high in tree, eat insects on tree bark.
Cougar	Den in caves, thickets or under logs, eats animals (deer, elk, rabbit, raccoon), plants grow, animals return, food supply for cougar returns.
Pine Snake	Go underground if fast enough, may be trapped in area and burn, new plant growth invite rodents = food for snake.
Black Bear	Can get away from fire, destroys food supply (plants).

Chaparral

Animal	Describe Benefit or Hazard of Fire
	Burrows in other animal homes (squirrel or badger). Prefers open area to catch prey (insects, rodents, lizards, snakes, birds). Small animals eat eggs & coyotes, badgers, skunks and birds of prey eat adults. Adults fly away from fire. Leave if all is burned.
	Nest in tallest tree. Eats mice, rabbits, reptiles, insects, birds. Crown fires burn nests. Fire opens area and can see prey better.
	Can out run a fire. Food supply is burned. Den in hollow log or cave. Can burrow underground. Eats many things.
	Nests in trees or on ground. Eats acorns, stems, seeds, fungi. Coyotes, bobcats & gray fox eat them. Survive cool fires. Burrow underground. Don't return to a burned area right away – wait for plants to grow back.
	Prefer an open area. Predators = mountain lion, bears, coyotes & wolves. Plant eater – normally grass & flowers, leaves & stems of woody plants. Bitterbush important winter food.
	Adults escape fires. Their prey (rabbits and small animals). Will eat birds, reptiles & insects. Come back. Den in hollow logs or caves. Owls, cougar & coyotes eat kittens.
	Eats seed, fruit, nuts, insects, frogs, turtle, mice. Bobcats, gray fox, snakes & crows eat eggs and birds. Nest low to the ground. Likes cleared vegetation spots to feed.
	Lives in caves or unused bear dens. Prey on small animals & birds. Eat fruits, berries & plants. Wolves, bears & lions prey on it. Good habitat for hunting grounds (burned and unburned).
	Live in areas that do not have thick vegetation. Prefer trees to make their nest in but will nest on the ground. Eats seeds, fruit, nuts & insects. Hawks, owls, bobcats & squirrels prey on them. Fire helps by thinning vegetation.
	Nest low to the ground. Eats seeds & insects. Eaten by larger birds. Fire destroys nest. Adults fly away. Fire thins vegetation allowing plants to grow out.

Chaparral

Plant	Describe Benefit or Hazard of Fire
	White-tail & mule deer eat this in fall & winter. Planted to prevent erosion. Can survive fires that completely burn tops – roots resprout. Seeds can not survive fire.
	Wild animals eat this = coyotes, woodrats, wild turkey (eat fruit), mule deer (eat leaves and shoots). Grows thick creating a hiding place for small mammals, birds & mule deer. Fire causes seeds to grow. Underground plant can resprout.
	Rodents & deer eat seeds. Provides cover for many animals – even mountain lions & golden eagles. Needs fire to release seeds.
	Pack rats used broken spines to protect burrows. Birds nest in spiny plants. Deer & cattle eat fruit.
	Mule deer & woodrat eat fruit & leaves. Survives cool fires. Roots resprout. Yucca seeds survive higher temperatures than most other plants.
	Large domestic animals eat the leaves & twigs. As long as the underground does not burn, it will resprout.
	Grows in an open area. First plant to return to a burned area.

Chaparral

Animal	Describe Benefit or Hazard of Fire
Burrowing Owl	Burrows in other animal homes (squirrel or badger). Prefers open area to catch prey (insects, rodents, lizards, snakes, birds). Small animals eat eggs & coyotes, badgers, skunks and birds of prey eat adults. Adults fly away from fire. Leave if all is burned.
Red-Tailed Hawk	Nest in tallest tree. Eats mice, rabbits, reptiles, insects, birds. Crown fires burn nests. Fire opens area and can see prey better.
Gray Fox	Can out run a fire. Food supply is burned. Den in hollow log or cave. Can burrow underground. Eats many things.
Dusky-Footed Woodrat	Nests in trees or on ground. Eats acorns, stems, seeds, fungi. Coyotes, bobcats & gray fox eat them. Survive cool fires. Burrow underground. Don't return to a burned area right away – wait for plants to grow back.
Mule Deer	Prefer an open area. Predators = mountain lion, bears, coyotes & wolves. Plant eater – normally grass & flowers, leaves & stems of woody plants. Bitterbush important winter food.
Bobcat	Adults escape fires. Their prey (rabbits and small animals). Will eat birds, reptiles & insects. Come back. Den in hollow logs or caves. Owls, cougar & coyotes eat kittens.
Scrub Jay	Eats seed, fruit, nuts, insects, frogs, turtle, mice. Bobcats, gray fox, snakes & crows eat eggs and birds. Nest low to the ground. Likes cleared vegetation spots to feed.
Coyote	Lives in caves or unused bear dens. Prey on small animals & birds. Eat fruits, berries & plants. Wolves, bears & lions prey on it. Good habitat for hunting grounds (burned and unburned).
Mourning Dove	Live in areas that do not have thick vegetation. Prefer trees to make their nest in but will nest on the ground. Eats seeds, fruit, nuts & insects. Hawks, owls, bobcats & squirrels prey on them. Fire helps by thinning vegetation.
Rufous-Sided Towhee	Nest low to the ground. Eats seeds & insects. Eaten by larger birds. Fire destroys nest. Adults fly away. Fire thins vegetation allowing plants to grow out.

Chaparral

Plant	Describe Benefit or Hazard of Fire
Birchleaf	White-tail & mule deer eat this in fall & winter. Planted to prevent erosion. Can survive fires that completely burn tops – roots resprout. Seeds can not survive fire.
Eastwood Manzanita	Wild animals eat this = coyotes, woodrats, wild turkey (eat fruit), mule deer (eat leaves and shoots). Grows thick creating a hiding place for small mammals, birds & mule deer. Fire causes seeds to grow. Underground plant can resprout.
Tecate Cypress	Rodents & deer eat seeds. Provides cover for many animals – even mountain lions & golden eagles. Needs fire to release seeds.
Buckbush	Pack rats used broken spines to protect burrows. Birds nest in spiny plants. Deer & cattle eat fruit.
Yucca	Mule deer & woodrat eat fruit & leaves. Survives cool fires. Roots resprout. Yucca seeds survive higher temperatures than most other plants.
Flannel Bush	Large domestic animals eat the leaves & twigs. As long as the underground does not burn, it will resprout.
Chia	Grows in an open area. First plant to return to a burned area.