Oregon Caves

National Park Service
U.S. Department of the Interior

Oregon Caves National Monument
Cave Junction, Oregon

Teacher's Companion Guide to the Videos

The Marble Halls of Oregon:
Exploring the Oregon Caves National Monument
&
Great Lodge at the Marble Halls of Oregon:
The Chateau at the Oregon Caves

Adaptable for Grades 3-8

"Everything seemed to be leading me to the cave,"

Elijah Davidson, 1922

(writing about his experience in 1874).

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Teacher's Companion Guide to the Videos

The Marble Halls of Oregon & Great Lodge at the Marble Halls of Oregon

Contributors

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Teacher's Companion Guide to the Videos

The Marble Halls of Oregon & Great Lodge at the Marble Halls of Oregon

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Teacher's Companion Guide to the Videos

The Marble Halls of Oregon & Great Lodge at the Marble Halls of Oregon

Subject Areas: *social studies:* geography, Oregon history, civic leadership, and economics
science: earth science, life science, physical science, chemistry, and geology

Grade Level: adaptable for grades 3-8

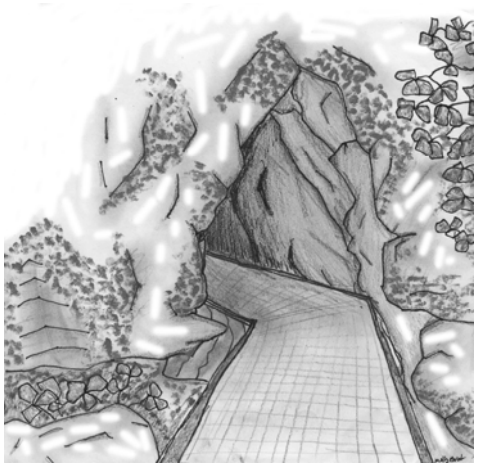
Introduction: *The Marble Halls of Oregon: Exploring the Oregon Caves National Monument* (running time of 24 minutes)
Great Lodge at the Marble Halls of Oregon: The Chateau at the Oregon Caves (running time of 24 minutes)

The *Teacher's Companion Guide to the Videos* accompanies two 24-minute documentaries entitled *The Marble Halls of Oregon: Exploring the Oregon Caves National Monument* and *Great Lodge at the Marble Halls of Oregon: The Chateau at the Oregon Caves.* They were produced by Southern Oregon Public Television in conjunction with Greg Frederick Productions, LLC, 2011. The videos are intended to support teachers focused on bringing nature and history alive through the use of primary source documents, historical records, and hands-on activities. The title of the corresponding video is listed at the header of each lesson plan.

When finished with the videos and lesson plans, explore even further! Visit Oregon Caves virtual tour on-line at: **www.gotouroregoncaves.com.** This online adventure transports you to the marble world beneath the ancient forest for an interactive experience.

Synopsis: *The Marble Halls of Oregon* (Running time of 24 min.)

This video transports the viewer through time to 1874 by recreating the discovery of the cave by Elijah Davidson while he was on a hunting trip. Following in Elijah's footsteps were William Fidler (1877-78), friend of Elijah, and Thomas Condon (1884), professor at the University of Oregon. The first nation-wide coverage of Oregon Caves occurred in 1907 when Joaquin Miller, poet and writer, wrote about his experience at the cave in *Sunset Magazine*. As more people entered the cave, some defaced the walls or removed **calcite** deposits. Many people urged against the degradation which then prompted President William Howard Taft to declare it a **National Monument** in 1909 to protect and preserve the caves because of its unusual scientific interest.



The video explores the natural history and the unique biological and geological diversity of this mountainous region. It explains, through animations and descriptions, the basic geology of the different types of rocks and the processes which formed the Siskiyou Mountains of southwestern Oregon. Also discussed is the specific chemical **sedimentation** process that created such fanciful cave features as flowstone, stalactites, and stalagmites. The video also conveys the importance of the cave in providing habitat for bats and the myriad of macro-invertebrates that are **endemic** to this region.

This video examines the cultural history of the cave and its development from multiple viewpoints. It discusses the concept of stewardship in protecting the cave and surrounding forest and how public visitation can challenge preser-

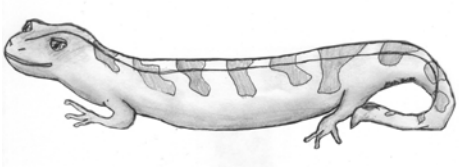
vation. This video helps viewers understand the important role that federal protection has played and the on-going effort of the National Park Service to blend the goals of public use with long-term preservation of natural features.

Annually, more than 50,000 people explore the actual "Marble Halls of Oregon." Join them virtually through the adventurous video and then continue the voyages by extending intellectual curiosity and wonder into your classroom through the lesson plans!

Key Concepts: *The Marble Halls of Oregon*

- Geological Processes: geological diversity, geologic time, plate tectonics, metamorphism, cave creation (**speleogenesis**), and calcite deposit (**speleothem**)
- Unique Organisms: biological diversity and endemic species
- Management Concerns: conservation, preservation, and stewardship

Discussion Questions: *The Marble Halls of Oregon*



Geological Processes:

- How did the forest environment help make the cave? How did it help create the cave's calcite deposits?
- How was the **marble** that makes up the cave formed? How were the Siskiyou Mountains created?

Unique Organisms:

- What are endemic species? Why is it important to protect them?
- What geologic events have contributed to the high endemism found in the Siskiyou Mountain area?

Management Concerns:

- How do you think Oregon Caves would look today if it had not been protected under federal law in 1909?
- What are some issues natural resource managers face when trying to balance the goals of providing public access to an area with the need to protect and preserve the natural history of an area?

Synopsis: *Great Lodge at the Marble Halls of Oregon* (Running time of 24 min.)

This video celebrates one of the great architectural treasures of the National Park system, the Chateau at the Oregon Caves. It is a remarkable place with both a historic past and an exciting future. Designed and built by Oregonian architect Gust Lium in the 1930's, the Chateau provides today's visitors with a glimpse of the past as well as a sanctuary in a rustic, resort setting.

The Chateau is a prime example of organic architecture by making use of local materials and the land's natural contours. The building blends in with the natural surroundings with its exterior Port Orford cedar bark siding, massive marble fireplace, and 30-inch diameter rough-hewn ceiling posts.

This video considers the idea first put forth by our Founding Fathers-- George Washington, Thomas Jefferson, and John Adams-- about the role of government. They believed that government has a central role to play in developing infrastructure, especially transportation and related facilities to support local commerce. This is exemplified by the development of Oregon Caves as it grew from a place for only the most rugged adventurers in the late 1800's to an established major tourist attraction at the end of the 1930's. During the 1930's, Oregon state government completed the road to the Monument, the Oregon Caves

Company constructed the Chateau, and the Civilian Conservation Corps built trails and rockworks.

A recurrent theme of this video is the balance between the development of an economically viable attraction and the preservation of the natural environment for future generations to enjoy. The presence of the Chateau has added value and beauty to the landscape while providing tourists with a safe haven during their visit. Even today, the Chateau at the Oregon Caves upholds the value of "keeping local business local" by serving locally grown and produced foods and beverages and featuring local artists and craftsmanship in the gift shop.

Key Concepts: *Great Lodge at the Marble Halls of Oregon*

- Federal Agencies and Programs: National Park Service, United States Forest Service, and Civilian Conservation Corps
- Public and Private Partnership: concessionaire, partnership, and public lands
- Organic Architecture: historic landmark and craftsmanship
- Management Concerns: conservation, preservation, and stewardship

Discussion Questions: *Great Lodge at the Marble Halls of Oregon*

Federal agencies:

- Why were the Army and Navy actively exploring, mapping, and plotting future expansion routes throughout the country in the 1800's?
- Why did President Theodore Roosevelt withdraw millions of acres of forestlands from the public domain in 1903? What happened in the country during this time?

- What role did President William Howard Taft believe the government should play in helping rural areas develop tourism and in managing public lands?

Public and Private Partnership:

- Why was the completion of the road to Oregon Caves significant in the use of the Monument?
- Who built the road to Oregon Caves?
- Who built the Chateau?
- How did the Civilian Conservation Corps contribute to the development of the Monument?

Organic Architecture:

- In what ways does the Chateau fit into its surrounding environment?
- What local materials were used in its construction?
- Why is the Chateau declared a National Historic Landmark?

Management Concerns:

- What happened to the Chateau in 1964?
- How did the architectural design of the Chateau lead to its near destruction?
- Why was it dangerous to move the Chateau back onto its original foundation?

Acid Test

Subject Area: chemistry, geology, and language arts

Duration: one class period

Objective

Students will be able to:

- categorize and identify rocks that do and do not react to acid.
- explain why caves and their calcite deposits are found at Oregon Caves.

Materials

- *The Marble Halls of Oregon* video
- samples of granite, diorite, basalt, or sandstone (non-calcium carbonate rocks), save one for the mystery rock
- limestone, marble, or chalk (calcium carbonate rocks), save one for the mystery rock
- one plastic cup for each rock
- *Which rock will react?* worksheet (attached)
- diluted 5% hydrochloric acid (HCl) or vinegar*

  *(*When a weak acid like vinegar is used for the acid test, the process is slow; bubbles are not readily apparent. If vinegar is used, scratch the surface of the rock to expose fresh material to help speed the reaction.)*
- Safety Concern: If using 5% HCl, provide students with goggles to protect eyes and if it gets in contact with skin, immediately rinse off.

Purpose

Placing a drop of acid on an unknown rock is a way to identify it as a calcium carbonate rock. This is known as the acid test. Any such rock containing calcium carbonate will fizzy bubbles when vinegar or 5% HCl is applied. This includes limestone, marble, calcite, dolomite, and chalk. Solution caves are caves occurring in rocks that are chemically weathered by weak acids. Not all rocks are eroded by weak acids and solution caves are found only in areas with calcium carbonate rocks. The makeup of the rocks in a region is important when determining if a solution cave could exist. This concept will be explored more during a field trip to Oregon Caves National Monument.

Anticipatory Set

Ask students:

- How do you identify rocks?
- How do minerals determine the physical characteristics of rocks?
- Do you know what a solution cave is?
- Where are solution caves found? Are they found everywhere?

Background Information

Watch *The Marble Halls of Oregon* and review the following with the students. In the forest soil, **decomposers** break down dead plants and animals releasing carbon dioxide. Precipitation percolates through the soil and captures carbon dioxide to create carbonic acid. This acid then chemically weathers the marble as it travels downwards through the cracks and holes in the rocks. The process of dissolving marble and opening up spaces within it is called speleogenesis. This is how solution caves form. Once openings are created in caves,

deposits of calcium carbonate start to form on the ceilings, walls, and floors of the cave. The process that makes solution caves is similar to how cave deposits form. As carbonic acid drips through cracks in the marble, it picks up calcium carbonate from the marble. When it comes in contact with the cave air the carbon dioxide bubbles out of solution, similar to opening up a can of soda. The calcium carbonate is then deposited on the ceilings, walls, and floors as the water drips creating speleothems or calcite deposits. Calcite deposits can also be called calcium carbonate deposits. This term is used interchangeably.

When dropping acid on the rock samples, only those containing calcium carbonate will react by forming fizzy bubbles.

This is an example of the chemical process that contributes to speleogenesis and speleothems:

calcium carbonate ($CaCO_3$) + carbonic acid (H_2CO_3) $\rightleftharpoons$
calcite deposits ($CaCO_3$) + carbon dioxide (CO_2) + water (H_2O)

This is the sample reaction that occurs in the classroom:

calcium carbonate ($CaCO_3$) + 5% hydrochloric acid (HCl) $\rightleftharpoons$
calcium chloride (CaCl) + carbon dioxide (CO_2) + water (H_2O)

Directions

1. Identify the rocks for the students.
2. Ask students to predict which rocks will react to the acid.
3. Drop the acid on the calcium carbonate rock and drop the acid on the non -calcium carbonate rock.
4. Ask students what happened. Which rocks reacted?

Check for Understanding

Ask students to:

- Identify each rock.
- Describe what is physically and chemically happening.
- Predict which other rocks will react to acid.
- Group the rocks according to how they responded to the acid.

Guided Practice

Give students two mystery rocks. One should be a calcium carbonate rock and one should be a non-calcium carbonate rock. Ask students to determine which rock contains calcium carbonate and which one does not.

Closure

Explain to students that the fizzy bubble reaction is essentially how solution caves are formed over millions of years, through carbonic acid or other acids. Ask students, "What if marble did not react to acid? Would there be a cave at Oregon Caves?" There would not be a cave at Oregon Caves without the calcium carbonate rock. If your class is going on a field trip to Oregon Caves tell students that they will see the results of this chemical reaction as it has occurred slowly over millions of years with the help of carbonic acid.

Independent Practice

- Besides reacting to acid, what makes calcium carbonate special? Ask students to research calcium carbonate's characteristics. How is it typically formed? What is its distinctive hardness? Typical color? Cleavage and luster? (Note: these characteristics will vary depending if students are researching calcium carbonate or **aragonite**. Have students focus on

either limestone, calcite, or marble, the cave forming rocks at Oregon Caves.)

- Ask students to hypothesize why solution caves are not found in all calcium carbonate rocks. What other vital ingredients or conditions are needed to form caves besides the correct cave forming rock?
- Have students come up with a list on other ways rocks can be identified. Geologists use hardness, color, cleavage, luster, and visual characteristics of the three main rock types.
- For higher grade levels, have students write the balanced chemical equation of the cave chemistry. Ask students to draw the chemicals in the cave chemistry reaction including the journey of the electrons. Have students describe why solution caves are not found in silica rich rocks.

References

Tolman, Marvin. *Hand-On Earth Science Activities.* San Francisco, CA: Jossey-Bass. 2006. Print.

Which rock will react?

Name:_____

Fill in the blanks and circle the correct answer.

I predict...

The calcium carbonate rock:_____ Will React / Will Not React

Non-calcium carbonate rock:_____ Will React / Will Not React

What Happened?

The calcium carbonate rock:_____ Did React / Did Not React

Non-calcium carbonate rock:_____ Did React / Did Not React

Mystery Rock #1 Did React / Did Not React

Does it contain calcium carbonate? Yes/No

Mystery Rock #1 name:_____

Mystery Rock #2 Did React / Did Not React

Does it contain calcium carbonate? Yes/No

Mystery Rock #2 name:_____

Why is this reaction important in making Oregon Caves?

_____

_____

_____

_____

The Marble Halls of Oregon

Explore the Science Behind the Video!

Create a Mini-Cave

Subject Area: geology and language arts

Duration: 45 minutes for set-up and complete as homework

Objectives

Students will be able to:

- recognize that cave deposits form differently.
- compare the diversity of cave deposits and their shapes.
- create a cave and cave deposits.

Materials

- *The Marble Halls of Oregon* video
- cardboard tubes
- scissors
- glue
- sticky tape
- drinking straws
- paints, brushes, crayon or markers
- shoebox
- tissue paper
- plain or colored paper
- cotton thread
- string

Purpose

As students build their own mini-cave, this hands-on activity helps them become more familiar with the cave deposits seen inside Oregon Caves.

Anticipatory Set

Ask students:

- What are cave deposits? Can you name a few examples?
- What are their shapes?
- How are the cave deposits formed?

Background Information

Watch *The Marble Halls of Oregon* and review the various calcite deposits such as stalactites, stalagmites, flowstone, and drapery. You may also want to visit Oregon Caves virtually on-line at: **www.gotouroregoncaves.com**.

Directions

1. Take a shoebox, remove the lid and place it to one side. This will be the roof of the cave.
2. Cut off one of the smaller ends of the box. This will be the floor and walls of the cave.
3. Paint or color the inside of the box and lid.
4. Once everything is dry start making cave deposits.

Suggestions on how to make the following cave features:

Cave Popcorn

Scrunch up small pieces of colored tissue paper into small balls. Glue several of these in clusters to the walls of the box facing the opening of the cave.

Column

Paint cardboard rolls and cut it to the correct size so that it reaches the shoebox

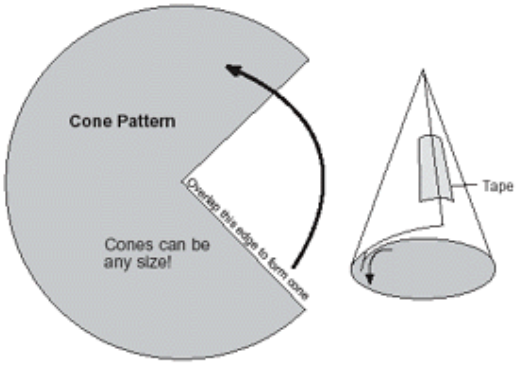
lid and sits on the shoebox base. Glue or tape the roll to the inside bottom of the box.

Soda Straws

Cut drinking straws into different sized sections. Attach the straws to the inside lid of the box, so that they hang down into the cave when the lid is replaced.

Stalagmite or Stalactite

Cut out a circle from a piece of paper or cardstock. Find the center of the circle and draw a dot. Draw a line from the center dot to the outside edge of the circle. Draw another line from the outside edge of the circle to the center dot to create a triangle-like shape, then cut it out. Roll the paper to make a cone shape and secure with tape or glue. Attach the cone to the bottom of the box if it is to be a stalagmite. Attach to the ceiling if it is to be a stalactite. Different sized circles can be used to make different sized stalactites and stalagmites.



http://www.wikihow.com/images/2/23/Pop_rocket_cone.gif

Rimstone Dams

Cut varying lengths of string. Coil the longest piece of string into a circle and glue it to the bottom of the box. Do this again using a smaller piece of string and place this inside the first string. Repeat this process until satisfied.

Tree Roots

Although these are not cave deposits, they are seen inside the cave. Cut small sections of cotton thread of varying sizes. Attach these using tape or glue to the box lid so that these will also hang into the box when the lid is replaced. You could also use pipe cleaners to get the same effect.

Additional features to add to the mini-cave:

- Bats or Cave Critters: use pre-manufactured plastic or create some out of modeling clay
- The River Styx: use blue tissue paper or crepe paper streamers
- Stairs and Handrails: use toothpicks or popsicle sticks

Check for Understanding

Were the cave deposits in the proper position? If cave creatures were found in the mini-cave, were they in the proper place? Ask students to name the cave deposits within their cave. Have them explain how the cave deposits formed.

Closure

Speleothems are cave deposits inside caves and form only after caves have openings. The shape and diversity of speleothems vary because of different water flow rates entering the cave, different evaporation rates, and its location inside the cave.

Independent Practice

- Have students name their cave and invent a story on how it was discovered.

- Have students write a narrative on how their cave was formed and how the cave deposits were created. Have them write it in first person such as "I started off as a bacterial reef…"

References

Wiki How: The How to Manual That You Can Edit. August 26, 2011 <http://www.wikihow.com/images/2/23/Pop_rocket_cone.gif>

The Marble Halls of Oregon

Explore the Science Behind the Video!

You Look Good for Your Age!

Subject Area: math and geology

Duration: one class period and assigned homework

Objective

Students will be able to:

- review the metric system and apply it to geologic events.

Materials

- *The Marble Halls of Oregon* video
- *Marvelous Marble Math* worksheet (attached)
- butcher paper
- pencil
- meter stick

Anticipatory Set

Ask students:

- How much does something have to age before you consider it old?
- How old is the Earth? How old are caves (in general)? How old are cave deposits in caves?
- What does the math term average mean?

The Marble Halls of Oregon
You Look Good for Your Age! Lesson Plan

Purpose

Time is a key ingredient for geological events and changes. Time is an abstract concept and the geologic time scale can be difficult to imagine or comprehend. Calculating the ages of speleothems can help students become more familiar with the geologic time scale and help prepare them for their virtual or real-life trip to Oregon Caves.

Background Information

Watch *The Marble Halls of Oregon* and review the following with the students. The immensity of geological time is far outside human experience. We experience time day-to-day, month-to-month, and year-to-year. However, geologists think of time in terms of millions of years. The vastness of time allows for imperceptibly slow processes which results in enormous changes. Given enough time, erosion hollowed out the mountain creating Oregon Caves and filled it with calcite deposits, or speleothems. Scientists estimate that Oregon Caves is 1.5 to 2 million years old. The oldest speleothem inside the cave is about 500,000 years old, and the average growth rate for speleothems is 2.5 centimeter per 1,000 years.

Directions

Calculate the following with the class. How long would it take for a millimeter, a centimeter, and a meter long stalactite to form?

Have students:

1. Draw on butcher paper (or a white board) life-sized depictions of some of the speleothems seen in the video.
2. Measure the drawings with a meter stick.
3. Calculate how many years the speleothems took to form.

Check for Understanding

Ask students:

- To calculate the age of a depicted speleothem.
- To calculate the average age of the drawn calcite deposits.
- How old is the oldest drawn speleothem? Youngest? Are these realistic ages for speleothems found inside Oregon Caves?

Closure

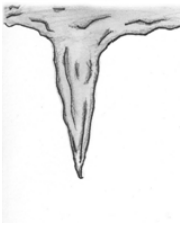
Relate to students the age of the calcite deposits by using simpler time comparisons. For example, 100,000 seconds is equivalent to approximately 28 hours; one million seconds is about 12 days; and one billion seconds equals around 31 years. Remind students the age of the Earth (4.6 billion years old), the age of the cave (1.5 to 2 million years old), and the average lifespan expectancy of a human (77.5 years for a person living in the United States).

Independent Practice

- Dr. Thomas Condon, professor at the University of Oregon, and his students signed the flowstone inside Oregon Caves during 1885. Based on the average growth rate for speleothems at Oregon Caves, how long will it take for the flowstone to cover up the signatures with 4 centimeters of calcite?
- Continue calculating cave math! Have students work on Oregon Caves *Marvelous Marble Math* worksheet.

References

Shrestha, Laura. *Life Expectancy in the United States*. Congressional Research Service: The Library of Congress. 2006. Print.



Marvelous Marble Math Worksheet

Name:_____
Date:_____

1) The tour route through Oregon Caves is ¾ of a mile long. This is only 22 percent of the total length of the cave. How many miles long is the cave?

2) Oregon Caves is in a mountain that is constantly being lifted up by the earth (through uplift). If the rate of uplift is about 2 mm per year, how many mm lower was the mountain when Elijah Davidson discovered it in 1874? How many inches lower? Note: 1 millimeter = 0.039370079 inches

3) People have climbed approximately 100 stairs when they reach the sinkhole opening in the cave. If there are approximately 500 stairs in the cave, what percent of the stairs have people climbed by the time they reach the opening?

4) Certain rooms of Oregon Caves are drying up. Scientists think this is because the forest above the cave has not had a natural fire for over 100 years. For thousands of years, the forest naturally had a fire occur every 30 years until recently due to human fire suppression. If a bucket in the cave catches 1 ml of water now and, after a controlled burn in the forest on top of the cave, it collects 276% more water, how much more water would be collected after the burn?

5) If one bat eats up to 600 mosquitoes per hour, how many would 100 bats eat in an hour? In 12 hours?

6) If a class of 35 children wants to tour Oregon Caves but each tour group can only take 13 children, how many tour groups will there be? One group will have less than 13 kids. How many will be in that group?

7) The National Park Service charges $8.50 per adult and $6.00 per child for cave tours. If a family with two parents, and two children want to go on a cave tour, how much will it cost?

8) During the height of the season, Oregon Caves sells 35 tickets per hour. How many tickets are sold in 90 minutes?

Marvelous Marble Math Worksheet-- **Answer Key**

1) The tour route through the Oregon Caves is ¾ of a mile long. This is only 22 percent of the total length of the cave. How many miles long is the cave?

(3/4)= .75 (0.75 miles / 22)* 10) = 3.4 miles of cave.

or solve it this way: (.75/n)*(22/100)=3.4

2) Oregon Caves is in a mountain that is constantly being lifted up by the earth (through uplift). If the rate of uplift is about 2 mm per year, how many mm lower was the mountain when Elijah Davidson discovered it in 1874? How many inches lower?

Current year – 1874 = n years. n years * 2 mm / year = answer mm lower.

Then convert the answer in mm to inches

3) People have climbed approximately 100 stairs when they reach the sinkhole opening in the cave. If there are approximately 500 stairs in the cave, what percent of the stairs have people climbed by the time they reach the opening?

100/500 = 1/5 = 0.20 or 20%

4) Certain rooms of Oregon Caves are drying up. Scientists think this is because the forest above the cave has not had a natural fire for over 100 years. For thousands of years, the forest naturally had a fire occur every 30 years until recently due to human fire suppression. If a bucket in the cave catches 1 ml of water now and, after a controlled burn in the forest on top of the cave, it collects 276% more water, how much more water would be collected after the burn?

Old number + (Old number * percent) = new number.

Old (1 + percent) = new number

1 * (1 + 2.76) = 3.76 ml of water (2.76 ml MORE water).

5) If one bat eats up to 600 mosquitoes per hour, how many would *100 bats eat in an hour? In 12 hours?*

100 * 600 = 60,000 insects per hour. 60,000 * 12 = 720,000.

6) If a class of 35 children wants to tour the Oregon Caves but each tour group can only take 13 children, how many tour groups will there be? One group will have less than 13 kids. How many will be in that group?

35 / 13 = 2 with 9 left over. 2 full tours will go and one will have 9 children on it.

7) The National Park Service charges $8.50 per adult and $6.00 per child for cave tours. If a family with two parents, and two children want to go on a cave tour, how much will it cost?

(2*8.50) +(2*6.00) = $29.00

8) During the height of the season, Oregon Caves sells 35 tickets per hour. How many tickets are sold in 90 minutes?

(35 tx / hour) *(1/60 min/hour) = 0.583 tx/ min get the rate of ticket sales per minute 0.583 tx / min * 90 min = 52.5 tx

Get into Caves!

Research different types of caves and present the research to the class. These presentations could be drawings, essays, or PowerPoint presentations. Where are these caves found? How are they created? How are they similar or different than Oregon Caves?

Rock On!

All three rocks types or families: sedimentary, metamorphic, and igneous rocks are found at Oregon Caves. Research how each of these rock families are formed. Start a rock collection by gathering rock samples of the three rock families. Then have an edible rock party. For example make a layered cake to symbolize sedimentary rocks, make taffy to represent metamorphic rocks, make chocolate chip cookies to act as igneous rocks.

What is Endemism?

What endemic species make their home in Oregon Caves National Monument? Using Oregon Caves' website, research one of the endemic species and report back to the class. Are there any endemic species in your area? Are they being protected?

Going Batty!

Study bats. How many different kinds of bats are there? What type of bats live in your region? What is white-nose syndrome and how is this affecting bats? What species of bats hibernate in Oregon Caves National Monument? Do they use the cave as their home? Do they hibernate in the winter? What do bats eat? What other natural history traits do they have?

Protect and Preserve

What National Monuments have you visited? Why were they set aside? Do you believe it is important for society to protect and preserve areas of rich cultural and natural significance? Explain.

Be a Natural Resources Manager!

What would you do the same or differently if you were in charge of protecting and preserving Oregon Caves? How would you balance the need for public access with the need to protect and preserve the area? Have students role play. Break up students into small groups. Give each group a specific role within the community, such as park manager, business concessionaire, forester, recreationalist, and biologist. Have them consider the questions above and present their answers to the class in a town hall meeting format.

Great Lodge at the Marble Halls of Oregon

Explore the History Behind the Video!

Preserving America's History

Subject Area: social studies and language arts

Duration: one class period

Objectives

Students will be able to:

- explain the difference between a National Park and Monument.
- appraise the value National Parks and Monument have in their lives.

Materials

- *Great Lodge at the Marble Halls of Oregon* video
- paper and pencil
- white board and markers
- the American Antiquities Act of 1906 (attached)
- the Oregon Caves' proclamation (attached)

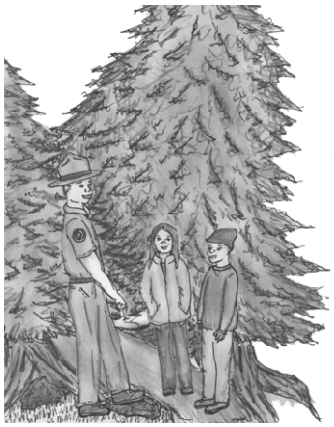
Anticipatory Set

Ask students:

- How are National Parks and National Monuments created?
- Why do we have these areas? Should we?
- Have you ever visited any of these sites?

Purpose

Oregon Caves was set aside as a National Monument over one hundred years ago by an executive order. The establishment of Oregon Caves as a Monument prevents certain **land use** such as hunting, mining, logging, and collecting. When you visit Oregon Caves, you will be expected to follow Leave No Trace principles: take only memories and leave only footprints. During your visit, evaluate how the National Park Service (NPS) is protecting and preserving this area for present and future generations to enjoy and use.



Background Information

Watch *Great Lodge at the Marble Halls of Oregon* and review the purpose of the American Antiquities Act of 1906. This Act gives the president the authority to set aside federally owned land for "the protection of objects of historic and scientific interest" (United States Congress, 1906). Since the passing of this Act, it has been utilized over a hundred times to create other National Monuments. Oregon Caves became a National Monument in 1909 by the executive order of President William Howard Taft for its "unusual scientific interest and importance, and it appears that the public interest will be promoted by reserving these caves with as much land as may be necessary for the proper protection thereof, as a National Monument" (Taft, 1909).

The purpose of the Act is to protect significant cultural and natural historic sites on federal lands and to prohibit destruction of these antiquities. Some National Monuments have turned into National Parks after being ratified by Congress.

Directions

1. In small groups have students identify the National Parks and Monuments they have visited.
2. Generate a class list and compare and contrast the list. Are most sites historical or are they natural history sites?
3. Discuss how these areas might be different today if they had not been preserved and protected.
4. What do these sites represent to the American people?
5. How have our values towards natural sites changed since 1800's?

Check for Understanding

Ask students:

- Why was Oregon Caves set aside as a National Monument?
- Do you feel that Oregon Caves has unusual scientific interest? How?
- How are National Parks and Monuments protected?
- Congress can create National Parks so why did Congress grant the president the authority to create National Monuments?

Closure

The Antiquities Act reflex American values. Because of this Act, Oregon Caves is protected and preserved for present and future generations to enjoy unimpaired.

Independent Practice

- Research the use of the Antiquities Act. What is the largest National Monument and the smallest? What is the most recent proclamation?
- The use of the Antiquities Act frequently creates controversy because it

restricts land use. Research any public lands currently being debated for conversion to National Monuments. Why is the area being considered? Are all the **stakeholders** in agreement? Are there any controversies? What is the student's opinion about setting the land aside?

- The Antiquities Act converted a portion of the Siskiyou National Forest into what is now Oregon Caves National Monument. When it was a part of the National Forest, the federal government could authorize timber and mineral harvesting. How would these actions affect the cave? How would you feel if you were a forest manager and could no longer harvest timber within the Monument's boundaries?
- Research National Parks or Monuments near your community. Identify the scientific or historical values that inspired a U.S. President to set it aside for future generations. Visit one of these sites if possible. Look at the natural resources in that site, including business developments that provide services and amenities to visitors.

References

Taft, William Howard. "By the President of the United States, A Proclamation." Executive Order 876 of July 12, 1909, 36 Stat. 2497. Print.

United States Dept. of Interior. National Park Service, Oregon Caves National Monument. *Oregon Caves General Management Plan.* 1st ed. Cave Junction, 1999. Print.

United States. Cong. *An Act for the Preservation of American Antiquities.* 16th Cong., 431–433), Approved, June 8, 1906. Print.

American Antiquities Act of 1906

16 USC 431-433

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall, upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

Sec. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with proper care and management of the objects to be protected: Provided, That when such objects are situated upon a tract covered by a bona fied unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

Sec. 3. That permits for the examination of ruins, the excavation of archaeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture, and War to institutions which may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulation as they may prescribe: Provided, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums.

Sec. 4. That the Secretaries of the Departments aforesaid shall make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this Act.

Approved, June 8, 1906

By the President of the United States of America

A Proclamation

Whereas, certain natural caves, known as the Oregon Caves, which are situated upon unsurveyed land within the Siskiyou National Forest in the State of Oregon, are of unusual scientific interest and importance, and it appears that the public interests will be promoted by reserving these caves with as much land as may be necessary for the proper protection thereof, as a National Monument.

Now, therefore, I, William Howard Taft, President of the United States of America, by virtue of the power in me vested by section two of the Act of Congress, approved June eighth, nineteen hundred and six, entitled, "An Act For the preservation of American antiquities," do proclaim that there are hereby reserved from all forms of appropriation under the public land lands, subject to all prior valid adverse claims, and set apart as a Natural Monument, all the tracts of land in the State of Oregon shown as the Oregon Caves National Monument on the diagram forming a part hereof.

The reservation made by this proclamation is not intended to prevent the use of the lands for National Forest purposes under the proclamations and Executive Order establishing the Siskiyou National Forest, but the two reservation shall both be effective on the land withdrawn, but the National Monument hereby established shall be the dominant reservation, and any use of the land which interferes with its preservation or protection as a National Monument is hereby forbidden.

Warning is hereby given to all unauthorized persons not appropriate, injure, remove, or destroy and feature of this National Monument, or to locate or settle on any lands reserved by this proclamation.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this 12th day of July in the year of our Lord One thousand nine hundred and nine, and of the Independence of the United States the one hundred and thirty fourth.

W^M H TAFT

By the President:
P C Knox
Secretary of State

Great Lodge at the Marble Halls of Oregon

Explore the History Behind the Video!

Organic Architecture

Subject Area: social studies and language arts

Duration: two class periods and homework

Objectives

Students will be able to:

- explain what is organic architecture.
- design a building in the style of organic architecture.
- recognize attributes of National Historic Landmarks.

Materials

- *Great Lodge at the Marble Halls of Oregon* video
- paper and pencil

Anticipatory Set

Ask students:

- What kind of house did Frodo and Bilbo Baggins live in in the novel, *The Lord of the Rings*? How did their house fit into its surroundings?
- How would you design a building to straddle a ravine? What issues could arise if the river flooded?
- Have you ever been to a National Historic Landmark?

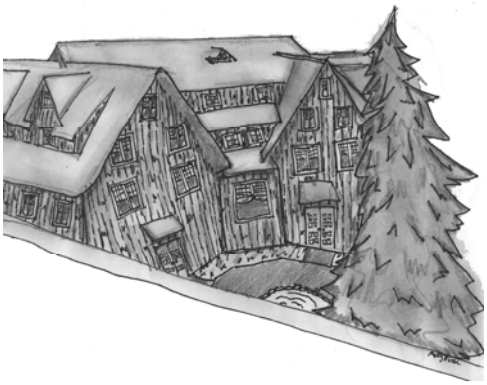
Great Lodge at the Marble Halls of Oregon
Organic Architecture Lesson Plan

Purpose

Tell students that they will discover organic architecture and its significance while they view *Great Lodge at the Marble Halls of Oregon* or visit Oregon Caves National Monument.

Background Information

Watch *Great Lodge at the Marble Halls of Oregon* and review how the Chateau exemplifies what is known as organic architecture.



Gust Lium designed the Chateau at the Oregon Caves using organic architecture design. Most of the construction materials are local in origin. The timber used in the construction was cut a short distance away and trimmed at a mill on Caves Highway. The outer Port Orford-cedar bark siding came from a nearby railroad-tie cutting operation. The marble stones for the large fireplace in the Chateau was gathered from a nearby site.

The Chateau blends into its surrounding seamlessly. The building spans across a small ravine and part of it is situated in the ravine's depression. Cave Creek flows out from the cave and into the Chateau's dining room. The style of the Chateau represents organic architecture because it mimics its surrounding by integrating the look of the surrounding mountain side into its structure.

The Chateau at the Oregon Caves was designated as a National Historic Landmark (NHL) on May 28, 1987. NHLs are historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Today, fewer than 2,500 historic places bear this national distinction.

Directions

1. In small groups, have students choose a scenic area they enjoy visiting.
2. Have them design a building that would blend in with the local surroundings and utilize local resources. What is the purpose of the structure? Who would go there? What local resources would they use?
3. Have students draw or make a diorama of their building blending into its environment.

Check for Understanding

Ask students:

- How does your building fit into its surrounding? What local materials were used for your building?
- How does the Chateau fit into its surroundings? What local materials were used for its construction?
- What challenges did Gust Lium face as he designed the Chateau?
- What challenges did you face when you designed your organic architectural building?
- Why was the Chateau designated as a National Historic Landmark?

Closure

The primary significance of the Chateau at the Oregon Caves lies in its organic architecture; it blends into its surroundings because of its design, how it was built, and the local materials used in its construction.

Independent Practice

- Have students research other buildings with organic architecture techniques. What resources were used for the building's structure? Who designed the buildings?
- Uncover the history of old structures by locating a historic building in your community. Research its architecture design and how it was constructed. What local materials were used in the construction? How does the building reflect the values of the people during its construction?
- Have students research National Historic Landmarks. Could students visit these places? Why were they designated as NHLs?

References

National Historic Landmarks Programs. June 28, 2011. National Park Service. August 31, 2011 <http://www.nps.gov/nhl/whatis.htm>

National Park Service: Architecture in the Parks. A National Historic Landmark Theme Study. February 26, 2001. National Park Service. August 31, 2011 http://www.nps.gov/history/history/online_books/harrison/harrison24.htm.

The Civilian Conservation Corps

Subject Area: social studies and language arts

Duration: one class period and homework

Objectives

Students will:

- evaluate the works of the Civilian Conservation Corps (CCC) at Oregon Caves National Monument and other natural areas.
- write about their imagined experience as a member of the CCC.

Materials

- *Great Lodge at the Marble Halls of Oregon* video
- paper and pencil
- CCC recruitment flyer (attached)
- imagined letter of Cecil Davidson (attached)

Anticipatory Set

Ask students if they have had a job. What kind? Did they enjoy it? What if your job paid little and the majority of the money was sent back to your family? Does that seem fair or even *legal*? This was legal if you were a member of the Civilian Conservation Corps!

Great Lodge at the Marble Halls of Oregon
Civilian Conservation Corps Lesson Plan

Purpose

The CCC constructed many projects. They constructed trails and buildings for National Parks and for other public lands in a rustic design that mimicked its immediate surroundings. When visiting Oregon Caves and many other areas you will see firsthand how the CCC improved the landscape. You will climb up stairs constructed by the CCC, hike CCC made trails, and touch the stonework created by these young men. While at the Monument, imagine yourself in their shoes. What was the typical day like for these young men? Where would they live? How did they enjoy their days off?

Background Information

Watch *Great Lodge at the Marble Halls of Oregon Caves* and show students the recruitment flyers for the CCC. Read the imagined letter of Cecil Davidson to students. Inform students that President Franklin Delano Roosevelt was the creator of the CCC jobs program during the Great Depression when many Americans were jobless. President Roosevelt felt that many Americans who were receiving private or public aid would prefer to work. He created the CCC to provide work for millions of young men in these hard economic times.

Directions

1. Give students the CCC recruitment flyer.
2. Tell students that they are going to pretend they are a member of the CCC and will write a letter home describing their experiences.
3. Instruct students that they will want to include their pretend name, age, location, daily life, and project they are working on.
4. Have students brainstorm their ideas together and assign the letters as homework.

Check for Understanding

After you read the imagined letter of Cecil Davidson, ask students:

- What was the CCC? What was the purpose of the CCC? What was the age range of CCC members?
- How much did men typically earn a month in the CCC? Why do you think most of it went back home to families? Do you think that is fair?
- After students present their letters, review camp routine, diet, jobs, and, recreation.
- Would you like to be a member of the CCC?

Closure

Discuss with the students if they feel that the CCC is still needed today. Why or why not? When visiting public lands today, you can witness the positive effects the CCC has had on protecting and preserving these areas.

Independent Practice

- Have students do more research on the CCC. How did the CCC benefit the people of Oregon? Has the CCC contributed to any constructions projects in their community? What is stewardship and how was the CCC's work in reforestation an example of this?
- Have students survey families and neighbors to determine what other groups or organizations they belong to that serves their community.
- Have students create their own recruitment flyer for the CCC.
- Have students write a modern day letter to their parents as if they are ac-

tive members of the CCC. Most students keep in touch with friends and family using texting. Allow students to indulge their texting craze and "text" a letter to their parents. Be sure to include the text abbreviations.

References

Hales, David. Learning to Give. Points of Light Institute, 2007. Website. September 9, 2011. <http://learningtogive.org/ lessons/unit95/lesson3.html>

Neis, Derek. *Assistance through Nature: How the Civilian Conservation Corps save the Nation through the National Parks*. United States. Dept. of Interior the National Park Service. 2010. Print.

Join the CCC!

Are you:

a male between the ages of 16 and 24?

unemployed?

single?

physically fit?

at least 107 pounds?

at least 60 inches tall?

not more than 78 inches tall?

Do you like:

meeting new people?

traveling?

manual labor?

strict regiment and routine?

Do you want to:

meet new people?

learn new skills such as construction or carpentry?

live in a barracks?

improve the natural resources on government owned lands?

enroll in classes taught at the barracks?

Did you know you will:

served for 6 months to 2 years?

gain 5 pounds within the first few weeks of service?

get to keep $8 out of the $30 earned?

receive a toilet kit, a towel, a mess kit, a steel cot, a cotton mattress, bedding, and an Army surplus blue uniform when enrolled?

July 12, 1937

Dear Mother:

I can't believe I have already completed my first month in the CCC, and I will get to serve for another year! Most of the crew at Camp Oregon Caves work for six months to two years. I am very thankful I was chosen to work for the CCC and that Uncle Jake talked me into applying at the local selection board. I was tired of being unemployed, and I am glad that I was the right weight (more than 107 pounds), physically fit enough, and of the right height--not too short (below 60 inches) and not too tall (over 78 inches)!

Before I arrived at Camp Oregon Caves, I had to undergo a physical examination and got many different vaccinations. I remember taking the CCC oath, and I received my clothing and supplies. I was given a toilet kit, a towel, a mess kit, a steel cot, a cotton mattress, bedding, and a round metal disk with my service number inscribed on it. I wear my Army surplus blue uniform with pride. This is the first time I had more than one set of clothing that was brand new!

I do so miss you but am glad for this opportunity to work and get fed! In fact, I think I may have gained 5 pounds already! When CCC Director Fechner described camp food as "wholesome, palatable, and of the variety that sticks to the ribs," he wasn't joking! Yesterday for breakfast I had coffee, an apple, cereal, pancakes, and bacon. For lunch, I ate two ham sandwiches and a piece of apple pie. For dinner I ate salmon (caught fresh in the river downstream), bread, fresh greens, and more apple pie!

I am getting used to the routine and of course, I don't have a choice in the matter! They run this camp like the military. This is my typical day: I get woken up by a large horn at 6:00 a.m. After calisthenics, I eat my hearty breakfast. Then I police the grounds and barracks before roll call and inspection. I start work at 7:45 a.m., eat lunch at noon in the field for an hour, and by 4:00 p.m. I return to camp for free time until dinner, which is served at 5:30 p.m. Once I'm finished with dinner, I either attend classes or play baseball. Light-out is at 10:00 p.m. About once a month we visit the local community of Grants Pass.

I enjoy living at Camp Oregon Caves. The sound of Sucker Creek serenade me to sleep. I don't mind living in wooden barracks. Even though there are about 200 of us living at the camp, these gents are like family. They have already nicknamed me Young Cecil. At 16, I am one of the younger men in the group. The oldest gent here is about 24 years old.

I am told that my barracks was designed by the Army for quick set-up and take-down. Our camp is laid out in an "U" shape with a parade ground in the center, a recreation hall (with a billiard table), garage, hospital, mess hall, officer quarters, several barracks, and a schoolhouse.

My main duty is to improve the landscaping of Oregon Caves National Monument. I actually don't mind lifting boulders, sculpting trails, and constructing buildings. I am learning so much. We just finished stringing lights in the cave and will start on building two trails called the Big Tree trail and the No Name trail. I am impressed with the stonework done at the Monument. There are many talented men in this group! We have already constructed beautiful retaining walls of marble, stone stairs, and safety walls in and outside the cave.

After work, I have become involved in the camp's newspaper and play baseball with the other gents. My bunkmate Earl has a mean spitball pitch. I also enrolled in school where I am being taught reading, writing, and arithmetic. But what gets me really excited is learning more about carpentry. I visit the camp's library often and read many books and magazines. During my free time I go to the canteen where I can buy film, candy, razor blades, and soda pop

At the end of next spring, we will journey to Crater Lake to help with its beautification. I hope you are receiving the $22 sent to you each month and I am thankful to get my $8 for the month.

I'm doing well mama. I'm doing good. Please give my love to Mary Sue.

Cecil Davidson

Why are Partnerships so Important?

The executive branch of the federal government declared Oregon Caves a National Monument and later the state of Oregon built the road leading to it. Local businessmen developed the lodge and restaurants to make it more comfortable for tourists. How would the Monument be different if local businessmen were not involved? How would it be different today if it was *only* a private business venture? Explain different ways that partnerships work to benefit the community and local economy.

Design your own Cave Tour!

In the early part of the 20th century, visitors to Oregon Caves went on tours of mystery and wonder based largely upon stories of imagination. This contributed to the origin of such fanciful names as the Ghost Room, the Imagination Room, and the Belly of the Whale. Today, visitors go on tours that feature scientific explanations for the calcite deposits and the unusual cave critters that dwell in the darkness. In small groups identify the pros and cons of each type of tour. Identify the different values associated with each type of tour. Develop a cave tour script or create a brochure for the cave tour.

Identify the Value of Local Resources

Identify the resource values of Oregon Caves National Monument. A resource can be defined as anything obtained from the environment to satisfy human needs and wants. Help students identify local resources that provide economic value to your community. For example, in Grants Pass, Oregon local businesses generate income by offering boat rides on the river. How are these resources being used by local citizens? Are they bringing tourists into the area? How might local resources be better developed to ensure sustainable commerce in the future?

View-Master

Bring a view-master to class. Discuss how these were used by children before households had multiple televisions and hand-held electronics were readily available. Explore the view-master's history. The concept for the view master was proposed at the Chateau at the Oregon Caves. Is the view-master still manufactured today? Where? Would students like one? Would they trade it in for their iPods?

Cavemen Society

Have students research the booster club, the Cavemen Society. Who started it? Who were its members? What was their purpose? Why isn't the Cavemen society as popular today as it was when it first started? What other booster clubs exist in the community?

Aragonite (a-rag-o-nite) – is a carbonate mineral, and a crystal form of calcium carbonate. It is formed by biological and physical processes, including precipitation from marine and freshwater environments. Aragonite's crystal lattice differs from that of calcite, resulting in a different crystal shape.

Calcite (cal-site)– is a carbonate mineral and a crystal form of calcium carbonate. This mineral is found in limestone deposits and marble.

Endemic (en-dem-ik)- Native to or confined to a certain region and not found anywhere else.

Decomposers (dee-kuhm-pohz-ers)- organisms that break down (rot) dead or decaying organisms

Land Use– how the land is used by humans. Examples of land use includes farming, logging, and urban development.

Marble– a metamorphic rock composed crystals of calcite along with lesser amounts of other minerals like graphite.

National Monument- is a protected area that is similar to a National Park except that the President of the United States can quickly declare an area of the United States to be a National Monument without the approval of Congress.

Sedimentation (sed-i-men-tay-shuhn) – the process of sediments or material settling to the bottom of a liquid

Stakeholder- a person, group, organization, or system who affects or can be affected by an organization's actions

Speleogenesis (spee-le-o-jen-uh-sis)-– origin and development of caves

Speleothem (spee-le-o-them) – depositional features in caves; its also know as cave deposits or cave formations and include things such as stalactites, stalagmites, flowstone, and drapery.

Teacher's Companion Guide to the Videos

Online Resources

Oregon Caves National Monument website
www.nps.gov/orca

Oregon Caves Virtual Tour
http://www.gotouroregoncaves.com/

Oregon Department of Education Standards by Design
www.ode.state.or.us/teachlearn/real/standards/sbd.aspx

Oregon's Environmental Literacy Plan
www.ode.state.or.us/oregon-environmental-literacy-plan.pdf

Bureau of Land Management Cave Resources from Science & Children
http://www.blm.gov/wo/st/en/res/Education_in_BLM/Learning_Landscapes/For_Teachers/science_and_children/caves/index.html

National Park Service System-wide Cave website
http://www.nature.nps.gov/geology/tour/caves.cfm

United States Geological Survey (USGS) Geology website related to National Parks
http://www.nature.nps.gov/geology/usgsnps/project/home.html

Earth Science Week Resources for Teachers aligned to National Science Standards
http://www.earthsciweek.org/forteachers/classroomactivities.html

Marengo Caves
http://marengocave.com/teachers/

Mammoth Cave National Park Learning Place
http://www.nps.gov/maca/learnhome/learnhome.htm

Carlsbad Caverns About Bats, Caves, Deserts
http://www.nps.gov/cave/teacherguide/abcd.htm

Ohio Caverns School Project Ideas
http://www.cavern.com/ohiocaverns/school.htm

Teacher's Companion Guide to the Videos

Oregon State Standards

Please note the suggested links to Social Studies and Science for Oregon State Standards for grades 3-8. It is up to the individual teachers to decide how to best relate the videos and the lesson plans to the specific objectives appropriate for students' learning within the context of your classroom.

Subject Areas: **Social Studies** (Oregon History, Civic Leadership, Economics, Geography) and **Science** (Earth Science, Life Science, Physical Science, Chemistry, Geology).

Social Studies

Civics and Government

Strand 1: Understand the origins, purposes, and functions of U.S. government, including the structure and meaning of the U.S. Constitution.
SS.03.CG.01 Identify essential ideas and values expressed in national symbols, heroes, and patriotic songs of the United States.

Strand 2: Understand the organization, responsibilities, and interrelationships of local, state, and federal governments in the United States.
SS.05.CG.02.01 Identify public safety, transportation, education, and recreation as responsibilities of local governments.

Strand 12: Understand how government is influenced and changed by support and dissent of individuals, groups, and international organizations.
SS.08.CG.06 Identify and give examples of how groups and organizations can influence the actions of government.
SS.08.CG.06.01 Identify and give examples of how groups and organizations can influence government policy or decisions and describe how these actions can lead to such influence.

Economics

Strand 1: SS.05.EC.01 Understand that all economic choices have costs and benefits, and compare options in terms of costs and benefits.
Strand 2: Understand economic trade-offs and how choices result in both costs and benefits to individuals and society.
Strand 3: Understand how conditions in an economy influence and are influenced by the

decisions of consumers, producers, economic institutions, and government.
Strand 4: Understand why places and regions are important to human identity and serve as symbols to unify or fragment society.
Strand 5: Grade 3 Understand the role of government and institutions (i.e., banks, labor unions) in various economic systems in an economy.
Strand 5: Understand how people and the environment are interrelated.
Strand 6: Understand the geographic results of resource use and management programs and policies.

Geography

SS.05.GE.07 Understand how physical environments are affected by human activities.
SS.05.GE.07.01 Understand how and why people alter the physical environment.
SS.05.GE.07.02 Describe how human activity can impact the environment.
SS.05.GE.08 Understand how human activities are affected by the physical environment.
SS.05.GE.08.01 Identify constraints on human activity caused by the physical environment.
SS.05.GE.08.02 Understand how the physical environment presents opportunities for economic and recreational activity.
Strand 5: Understand why places and regions are important to human identity and serve as symbols to unify or fragment society.
Strand 6: Compare and analyze physical (e.g., landforms, vegetation, wildlife, climate, and natural hazards) and human (e.g., population, land use, language, and religion) characteristics of places and regions.
SS.08.GE.04 Identify and compare physical and human characteristics of major regions and significant places in the world.
SS.08.GE.04.03 Recognize relationships between the physical and cultural characteristics of a place or region.
Strand 7: Understand how people and the environment are interrelated.
SS.08.GE.07 Understand how human modification of the physical environment in a place affects both that place and other places.
Strand 8: Understand the geographic results of resource use and management programs and policies.
Strand 12: Understand economic, cultural, and environmental factors that influence changes in population, and evaluate the consequences of the resulting increases or decreases in population.
SS.08.GE.06 Identify economic, cultural, and environmental factors that affect population, and predict how the population would change as a result.
SS.08.GE.06.02 Predict the effect of a given economic, cultural, or environmental change on a population.

History

Interpret and reconstruct chronological relationships.
SS.03.HS.01 Understand calendar time sequences and chronological sequences within narratives.
State & Local History: Understand and interpret the history of the state of Oregon. Understand and interpret events, issues, and developments in the history of one's family, local community, and culture.
SS.03.HS.02 Understand events from local history.

Understand and interpret events, issues, and developments in the history of one's family, local community, and culture.

Historical Skills: Understand relationships among events, issues, and developments in different spheres of human activity (i.e. economic, social, political, cultural).

SS.05.HS.01 Interpret data and chronological relationships presented in timelines and narratives.

Understand, recognize, and interpret change and continuity over time.

SS.05.HS.03 Understand how history can be organized using themes, geography, or chronology.

Identify and analyze diverse perspectives on and historical interpretation of historical issues and events.

SS.05.HS.04 Identify primary and secondary sources.

State & Local History: Understand relationships among events, issues, and developments in different spheres of human activity (i.e. economic, social, political, cultural).

SS.05.HS.07 Understand how individuals changed or significantly influenced the course of local history.

Historical Skills: Interpret and reconstruct chronological relationships.

SS.08.HS.01 Represent and interpret data and chronological relationships from history, using timelines and narratives.

SS.08.HS.01.01 Identify and create chronologies of events.

SS.08.HS.01.02 Compare and contrast historical interpretations.

Analyze cause and effect relationships, including multiple causalities.

SS.08.HS.02 Distinguish between cause and effect relationships and events that happen or occur concurrently or sequentially.

Understand, recognize, and interpret change and continuity over time.

SS.08.HS.03 Identify and give examples of chronological patterns and recognize them in related events over time.

State & Local History:

SS.08.HS.08 Understand the lasting influence of events and developments in local history.

Science

3.1 Structure and Function: Living and non-living things vary in their characteristics and properties.

- 3.1P.1 Compare and contrast the properties of states of matter.

4.2 Interaction and Change: Living and non-living things undergo changes that involve force and energy.

- 4.2P.1 Describe physical changes in matter and explain how they occur.
- 4.2L.1 Describe the interactions of organisms and the environment where they live.
- 4.2E.1 Compare and contrast the changes in the surface of Earth that are due to slow and rapid processes.

5.2 Interaction and Change: Force, energy, matter, and organisms interact within living and non-living systems.

- 5.2L.1 Explain the interdependence of plants, animals, and environment, and how

adaptation influences survival.

6.2 Interaction and Change: The related parts within a system interact and change.

7.2 Interaction and Change: The components and processes within a system interact.

- 7.2P.1 Identify and describe types of motion and forces and relate forces qualitatively to the laws of motion and gravitation.
- 7.2E.1 Describe and evaluate the environmental and societal effects of obtaining, using, and managing waste of renewable and non-renewable resources.
- 7.2E.4 Explain how landforms change over time at various rates in terms of constructive and destructive forces.

8.2 Interaction and Change: Systems interact with other systems.

- 8.2P.1 Compare and contrast physical and chemical changes and describe how the law of conservation of mass applies to these changes.
- 8.2E.2 Describe the processes of Earth's geosphere and the resulting major geological events.

Please note the suggested links to Social Studies and Science for the Common Core State Standards for grades 6-8. Oregon is one of more than 45 states that has adopted the Common Core State Standards. Listed below are the latest standards available as of spring 2012.

History and Social Studies, Grades 6-8

Reading Informational Text RH
Key Ideas and Details
6-8.RH.1 Cite specific textual evidence to support analysis of primary and secondary sources.
6-8.RH.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.

Integration of Knowledge and Ideas
6-8.RH.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
6-8.RH.8 Distinguish among fact, opinion, and reasoned judgment in a text.
Writing WH Text Types and Purposes
6-8.WH.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

Production and Distribution of Writing
6-8.WH.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Research to Build and Present Knowledge
6-8.WH.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
6-8.WH.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
6-8.WH.9 Draw evidence from informational texts to support analysis, reflection, and research.

Science and Technical Subjects, Grades 6-8

Reading Informational Text RST Key Ideas and Details
6-8.RST.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks
Integration of Knowledge and Ideas
6-8.RST.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

Writing **WHST Text Types and Purposes**

6-8.WHST.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

6-8.WHST.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.