UNIT: Limestone

Abstract:

This unit introduces students to the history, civics, geography, and economics relating to limestone. Students will identify continuity and change in their community due to the developments and opportunities provided by the natural resources in their area as they study the basic geographic elements of maps and globes. Throughout this limestone unit, students identify individual rights and

responsibilities along with the roles of citizens and explain how goods and services are used in the community.

Focus Questions:

How is the natural resource of limestone used around the community? What type of jobs does the limestone industry create?

Benchmarks	Assessment Tasks	Key
		Concepts
Identify continuity and change	Compare the way individuals lived in the past with	Time
over time in the different	the way they live in the present using a timeline.	Community
environments around them.	(1.1.1)	Goods
(1.1.1)	Identify individual rights and responsibilities and	Services
	describe how they benefit the community. (1.2.3)	Jobs
Describe ways that individual	Identify goods and services and explain their	
actions can contribute to the	importance in the community. Create a map of a	
common good of the classroom	community that provides goods and services and	
or community. (1.2.3)	explain your choices. (1.4.1, 1.4.2)	
	Identify natural resources found locally. Create a	
Identify goods that people use	collage of pictures of limestone being used around	
in the community. (1.4.1)	the town. (1.3.9)	
	Compare and contrast their dream job with a job in	
Identify services that people do	the limestone industry and document the results on a	
for each other. (1.4.2)	chart. (1.4.3)	
actions can contribute to the common good of the classroom or community. (1.2.3) Identify goods that people use in the community. (1.4.1) Identify services that people do	importance in the community. Create a map of a community that provides goods and services and explain your choices. (1.4.1, 1.4.2) Identify natural resources found locally. Create a collage of pictures of limestone being used around the town. (1.3.9) Compare and contrast their dream job with a job in the limestone industry and document the results on a	

Instructional Resources

Pictures of the mills and examples of how limestone can be used.

https://digital.library.in.gov/Search/Results?
lookfor=limestone&submit=

Compare and Contrast Tips

http://www.missscreaigh.com/uploads/1/8/8/6/18860824/8582453_orig.png

Map of limestone quarries in Indiana http://limestonesymposium.org/the-indiana-stone-belt

Limestone Timeline

http://sciencelearn.org.nz/Contexts/A-Fizzy-Rock/Timeline

Limestone Educational Video

https://www.youtube.com/watch?v=mt5Ik0f 2fXE Goods and services activity
http://www.econedlink.org/interactives/Econ
http://www.econedlink.org/interactives/Econ
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http://www.econedlink.org/interactive-tool-player.php?filename=em310_dragndrop_v2
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Catalog of Lessons

Lesson 1: Continuity and Change Students compare the ways individuals in the community lived in the past with the way they live in the present due to the discovery and development of limestone products and services using a timeline worksheet. They make estimated guesses based off of the timeline and then research to check the accuracy of their guesses for limestone use today.

Lesson 2: Responsibilities Students draw a picture of themselves and their responsibilities and write a story relating their responsibilities to a job dealing with limestone that they learn in the video.

Lesson 3: Build Your Own Community

Students draw their own community, learn about goods and services, and their importance in the community as well as having a business that provides limestone as a good or service.

Lesson 4: Natural Resources
Students become familiar with the main
natural resources that are found in Indiana.
Students also research the limestone
industry in Indiana and find the closest
quarry to them. Students discuss the uses of
limestone and take a walk down the street
that the school is on to identify the use of
limestone in any of the local buildings.

Lesson 5: Jobs

Students reflect on the job that they wish to have as an adult. Students learn about the jobs in the limestone industry. Some jobs include: stone cutters and carvers who have skills in working limestone into complex shapes and into art forms, and factory workers. Students then research a specific job in the limestone industry and compare and contrast that job to their dream job.

UNIT: Limestone Assessment Task 1

Abstract

This task is designed to assess students' understanding of continuity and change over time. Students refer to a timeline of limestone developments and compare these uses and events with their life today.

Prompt

Use the attached worksheet with the timeline.

Use iPads to research uses for limestone in our lives today.

Directions

"Use this timeline worksheet to think about the ways we use limestone today. Read the event/development of limestone in history and think about how this may have affected the way we use limestone today. Write an example of things we use or see that could have happened because of this. Then use the internet to see if your conclusion was correct. Look at the example: Limestone was used for making floors in 7000 BCE so I guessed that the process of making limestone hard and flat would be used in making countertops and patios. Then I looked up "limestone patios" and "limestone countertops" and found that we do use

limestone for these today. Read about limestone history and compare its use to how we use it today."

Procedure

Assign groups of 4 to 5 students to an iPad. Once they finish the worksheet they will get together as a group and look up their ideas to see if their guesses were correct and discuss as a group. If they are correct and their idea of limestone use is used today, they will place a check mark next to it, if they were wrong, they will place an "x" next to it and write a correct use that their group discusses.

Then as a group, students debate whether these developments helped daily life or if it was unimportant. Groups explore each of the events on the timeline and decide for themselves if the event was important and if it really made life better, or if it did not affect daily life and the world would not be different if this development was not made.

Students display their charts at the local library in the research section to show their community what they have learned.

BENCHMARK	SCORE			
	1	2	3	4

Identify	Guesses are not	There is a guess	The use of	The use of
continuity and	relevant to the	of limestone	limestone today is	limestone today is
change over	development	use today for	linked to the	obviously linked
time in the	mentioned in the	every timeline	event/development	to the
different	timeline.	date.	in the timeline.	event/development
environments				in the timeline.
around them.	Few guesses are	Almost all	Each guess has a	
(1.1.1)	researched and	guesses have a	check mark or "x"	Each guess has a
	marked as	check mark or	next to it.	check mark or "x"
	correct/incorrect.	"x" next to it.		next to it.
			Student	
	Student did not	Student	participated in	Student was an
	contribute to the	participated in	debate.	active participant
	group debate.	debate.		in the debate.

Assessment Task 1 Materials

Limestone timeline events:	How I think this affected our life today
7000 BCE – Lime Mortar Floor In Israel limestone was heated and slaked to make a strong floor.	Limestone can be used for countertops, floors, and even outdoor patios.
2560 BCE – Limestone in Pyramids and Temples The Great Pyramid of Giza consists of about 2.3 million limestone blocks.	
300 BCE – Roman Lime Production Technology Romans used slaked lime mixed with volcanic ash to create a type of cement that hardens in air and under water.	
10 CE – Lime Cement in Roman Roads Lime cement serves as a base core as well as filler holding the blocks or roading stone together.	
16 th Century – Lime as Agricultural Fertilizer Food production levels are greatly improved by crop rotation, the spreading of manure, and liming.	

UNIT: Limestone Assessment Task 2

Abstract

This task is designed to assess students' understanding of individual rights and responsibilities and how they benefit the community.

Prompt

Draw yourself and your responsibilities Colored pencils and crayons Limestone uses and processes video https://www.youtube.com/watch?v=mt5Ik0f 2fXE

Directions

"Draw a picture of yourself doing jobs that you are responsible for in your family. You can show yourself taking out the garbage, picking up your room, helping to clean the house, setting the table, or folding clothes. Other possible jobs could be mowing the lawn or cleaning the kennel or cage for a pet. Write a story about yourself and present it to the class, explain why you have these responsibilities (the benefits and the consequences of you not doing your responsibilities). In your conclusion, decide whether you will keep these responsibilities,

change them, remove them, or add other responsibilities to help your community. How would you affect your family if you stopped doing these things? Will you decide to continue doing these or not? Why? Include at least one comparison of a job related to limestone that you saw in the video. What is this job? What do they do? How does this help the community? What happens if they stopped doing this job?"

Procedure

Have the class watch the video about limestone and write down one job that they see dealing with limestone.

Each student draws a picture of themselves and images depicting their responsibilities.

Then students write a story about their responsibilities and compare it to the limestone job that they learned about in the video.

Students share their stories with the class. Their pictures and stories will be shown at the local library to show the community the importance of having responsibilities and contributing to the community.

BENCHMARK	SCORE			
	1	2	3	4

Describe ways	2 or fewer	Images of 3	Image of 4	Image of at least 5
that individual	images of	responsibilities.	responsibilities.	responsibilities.
actions can	responsibilities			
contribute to	is drawn.	Story explains	Story tells about	Story tells about
the common		responsibilities but	responsibilities,	responsibilities,
good of the	Story does not	does not tell about the	benefits,	benefits,
classroom or	connect to a	consequences of not	consequences of	consequences of
community.	limestone job	doing them.	not doing them,	not doing them,
(1.2.3)	learned about	Limestone job learned	and a	and a connection
	in the video.	from the video is	connection to a	to a limestone job.
		described.	limestone job.	

UNIT: Limestone Assessment Task 3

Abstract

This task is designed to assess students' understanding of goods and services within their community.

Prompt

Use the attached worksheet to draw your community map
Colored pencils and crayons
Interactive drag and drop activity link
http://www.econedlink.org/interactives/EconEdLink-interactive-tool-player.php?filename=em310_dragndrop_v2_ave.swf&lid=310

Directions

"We will do a drag and drop activity as a class. Raise your hand to vote for which job you think each person does. What is a good? What is a service?

Now you will draw a map of a community. Include three businesses that provide a service, three businesses that provide a good

that is used by the people in the community, and three types of shelter that people could live in. Make sure one of your businesses uses or sells limestone. You will share your community map with the class.

Procedure

Have the class do the goods and services online activity together and discuss the definition of each.

Each student draws a map of their community that has three services, three businesses that provide goods, and three types of shelter.

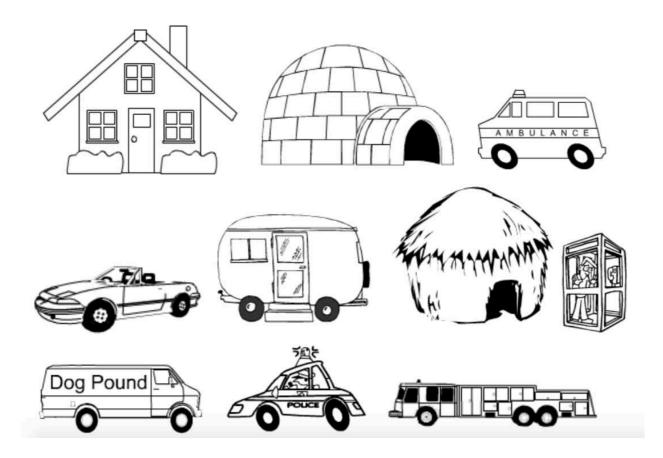
Then students share their maps with the class and explain why they chose those goods and services. They explain what happens if one of the businesses shuts. They have at least one business that uses or sells limestone. These will be displayed at the local library.

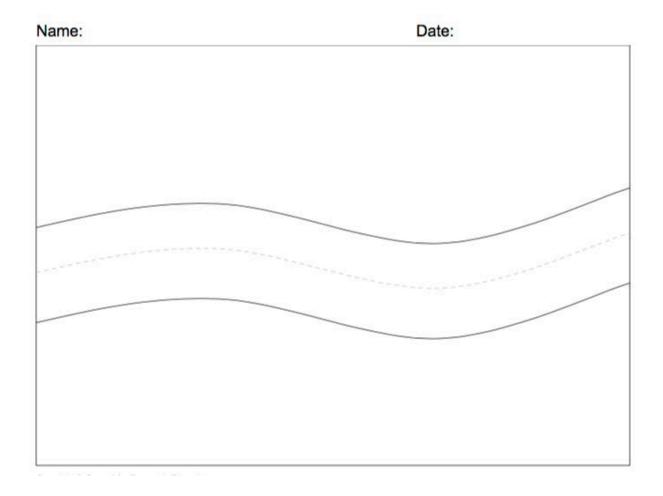
BENCHMARK	SCORE				
Identify goods that people use in the community. (1.4.1)	Missing two or more businesses that provide a good or service.	Missing one business that provides a good or service.	3 businesses that provide a service. 3 businesses that produce a good. 3 types of shelter	More than 3 businesses that provide a service. More than 3 businesses that produce a good.	
Identify services that people do for each other. (1.4.2)	Limestone business is missing or is not explained at all in the presentation.	The importance of limestone in the community was not explained clearly.	3 types of shelter. Explains the importance of limestone in their community and has a business that produces a good or service with limestone.	More than 3 types of shelter. Explains the importance of limestone in their community and has a business that produces a good or service with limestone.	

Materials for Assessment Task 3



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Assessment Task #4: Natural Resources GRADE LEVEL: First Grade

UNIT: Limestone

Abstract

This task is designed to assess students' knowledge of the availability of natural resources in the state and how they are used. Students will take pictures of limestone being used around the town. This activity encourages students to investigate the importance of natural resources and encourages them to protect the resources.

Prompt

An outline of the uses of limestone Information on the availability of limestone in Indiana

Computer/iPad access to internet
Pictures from Indiana Memory that
demonstrate the uses of limestone.
https://digital.library.in.gov/Search/Results?lookfor=limestone&submit=
Map of limestone quarries in Indiana
http://limestonesymposium.org/the-indiana-stone-belt

Directions

"We have been learning about the presence of natural resources around the state. Now look at some natural resources that are very close to our town. Investigate the limestone quarries that are located near us. The quarries are places where limestone is collected. After it is collected, limestone can be used to create many things seen around our town. Follow the directions and create a collage displaying the use of limestone around our town."

Review the availability of natural resources and the importance of making sure the resources are preserved.

Go to the website:

http://limestonesymposium.org/the-indianastone-belt and look at the map that shows the quarries that are near us.

Participate in a group discussion led by the teacher about what the students have interpreted from the source. Discuss how significant the number of quarries close to the town is

Look at pictures on Indiana Memory of the examples of how limestone is used.

Discuss your findings as a group and focus on the questions: *Have you ever seen limestone used around the town?

*What things can be made out of limestone?

As a class, we will go on a walk around downtown and take pictures that demonstrate the use of limestone.

After we get back, you will print out your pictures and create a collage of the different examples of limestone being used.

The collages will be featured at the local town hall.

After learning about the uses of limestone to create other things, you will explore some alternatives to limestone for production purposes. Examples include: concrete, wood, or granite. Do you believe that limestone is the best natural resource for building purposes? Choose the resource you believe is best and defend your opinion in a

Procedure

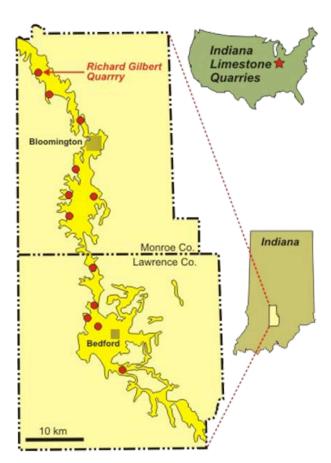
class discussion.

The students learn about the availability and uses of limestone. The teacher then provides students with cameras and takes them on a walk through the downtown area. Students take pictures of examples of limestone being used around the town. Students create a collage with pictures.

BENCHMARK	1	2	3	4
Give examples of	Collage has	Collage has 3	Collage has 4	Collage has five or
natural resources	fewer than two	examples.	examples.	more examples.
found locally and	examples.	Pictures	Pictures	Each picture
describe how people	Some of the	demonstrated	demonstrated	demonstrated an
in the school and	examples do not	three uses of	four uses of	accurate example of
community use these	demonstrate the	limestone.	limestone.	how limestone is used
resources. (1.3.9)	use of limestone			around the town.

Assessment Task Four Materials

*Map of the quarries close to the town



Examples of how limestone can be used









Assessment Task #5: Jobs

GRADE LEVEL: First Grade

UNIT: Limestone

Abstract

This task is designed to assess students' understanding that each job is very unique and has different duties as well as different benefits. Students compare and contrast their dream job to a job in the limestone industry. This gives students a baseline understanding of the job world at a young age and that will prepare them for their future jobs.

Prompt

Computer/iPad access to internet
Pictures from primary source Indiana
Memory that depict the limestone workers
https://digital.library.in.gov/Search/Results?lookfor=limestone&submit=
Diagram tips

http://www.missscreaigh.com/uploads/1/8/8/6/18860824/8582453 orig.png

Directions

"We have been learning about the presence of natural resources around the state. We will now look at the jobs that are created by the limestone industry."

Choose your dream job that you wish to have when you are an adult.

Discuss your dream job with the class and listen to everyone else's responses as well.

Search for different jobs related to the

Participate in a group discussion led by the teacher about the similarities and differences in each job.

Look at pictures on Indiana Memory of the workers in the factories and quarries.

Discuss your findings as a group and focus on the questions:

*What jobs are involve the limestone industry?

*How are these jobs different from your dream job?

*How are these jobs similar to your dream job?

Look at the compare and contrast diagram. Choose a specific job related to the limestone industry and create your own diagram and compare/ contrast the limestone job with your dream job.

After you have thought about the similarities and differences in the two jobs, write a couple sentences about which job you think is best and why.

The diagrams will be featured at the annual career fair located at the park.

Procedure

Students compare their dream job to a job in the limestone industry and share their findings with the class. Then, the students create a compare/contrast chart demonstrating the similarities and differences.

Scoring Rubric

limestone industry.

BENCHMARK	1	2	3	4
1.4.3 Compare	Diagram has	Diagram has 3	Diagram has 4	Diagram has five
and contrast	two bullet	bullet points in	bullet points in	or more bullet
different jobs		each category.	each category.	

people do to	points in each	Student only	Student only	points in each
earn income.	category.	explains either	explains either	category.
	Student does	why they chose	why they chose	Student fully
	no explain why	the job or why	the job or why	explains why they
	they chose one	they did not	they did not	chose the
	job over the	choose the other.	choose the other.	particular job and
	other.			why they did not
				choose the other.

Assessment Task 5 materials

Limestone workers





