



# Ohio Studies Weekly 4

## DISCOVER MORE!



Primary Source &amp; Bonus Media

## The Erie Canal and Grand Lake

In Grand Lake St. Mary's State Park, Natalia and Steven looked out at the teal water before them. What a magnificent sight! It'd taken them nearly two hours to reach the park from Columbus. However, now that they'd reached their destination, Natalia and Steven only felt awe. They stood together, taking in this lake that stretched for miles and miles.

"Isn't it incredible a lake like this exists and has been here for thousands and thousands of years?" Steven said, shaking his head.

"It does seem a bit surreal, right? To think this sort of nature has been around for centuries ... and we've only been on this planet for a decade!"

"I mean, it sort of makes you think about our place in this world, huh?"

Natalia nodded thoughtfully. "Yes, it certainly makes me think about our place here in history ... and our responsibility to the nature around us."

A park ranger was passing by and Natalia waved him down. "Excuse me, Ranger, do you mind stopping a moment?"

The ranger nodded, his mustache bouncing in the wind. "How can I help you folks today?"

"Can you please tell us roughly how old this lake is?" Natalia said.

Steven nodded and said, "I'm going to guess it's around 10,000 years old. How close am I?"

The park ranger chuckled. "Why, this lake here is less than 200 years old!"

Natalia and Steven almost took a step back. They were so surprised.

"You're joking, surely!"

The ranger shook his head. "Now, you see, the Grand Lake is actually a human-made lake built in the early 1800s. The Grand Lake wasn't the Grand Lake until 1845!"

"But why would humans build a lake in the ground? That seems a rather strange thing to do!" said Natalia.

"Well now, this lake is actually a reservoir, which is an artificial lake used

as a source of water. This reservoir feeds right into Lake Erie."

The ranger swept his arms about, clearly interested in his history lesson. "Now, imagine—this entire stretch of land once was a giant swamp. Then, around 1,700 workers with strong shovels and axes came along and began cutting down the trees. These workers started at dawn, and worked until dusk, digging the banks of this lake to make this a reality."

The ranger continued, "Can you two guess how large this reservoir is?"

Natalia and Steven looked at each other, both shrugging their shoulders.

"I'd guess it's around 5,000 acres?" Steven said.

The ranger smiled and leaned in. "Think much, much bigger—this lake here is 13,500 acres. That's about the size of 10,200 football fields!"

Natalia and Steven looked back out at the lake, both in awe, thinking of all the workers needed to make this Grand Lake as "grand" as it was.

"But—I'm still confused. Why did they need to build this lake?"

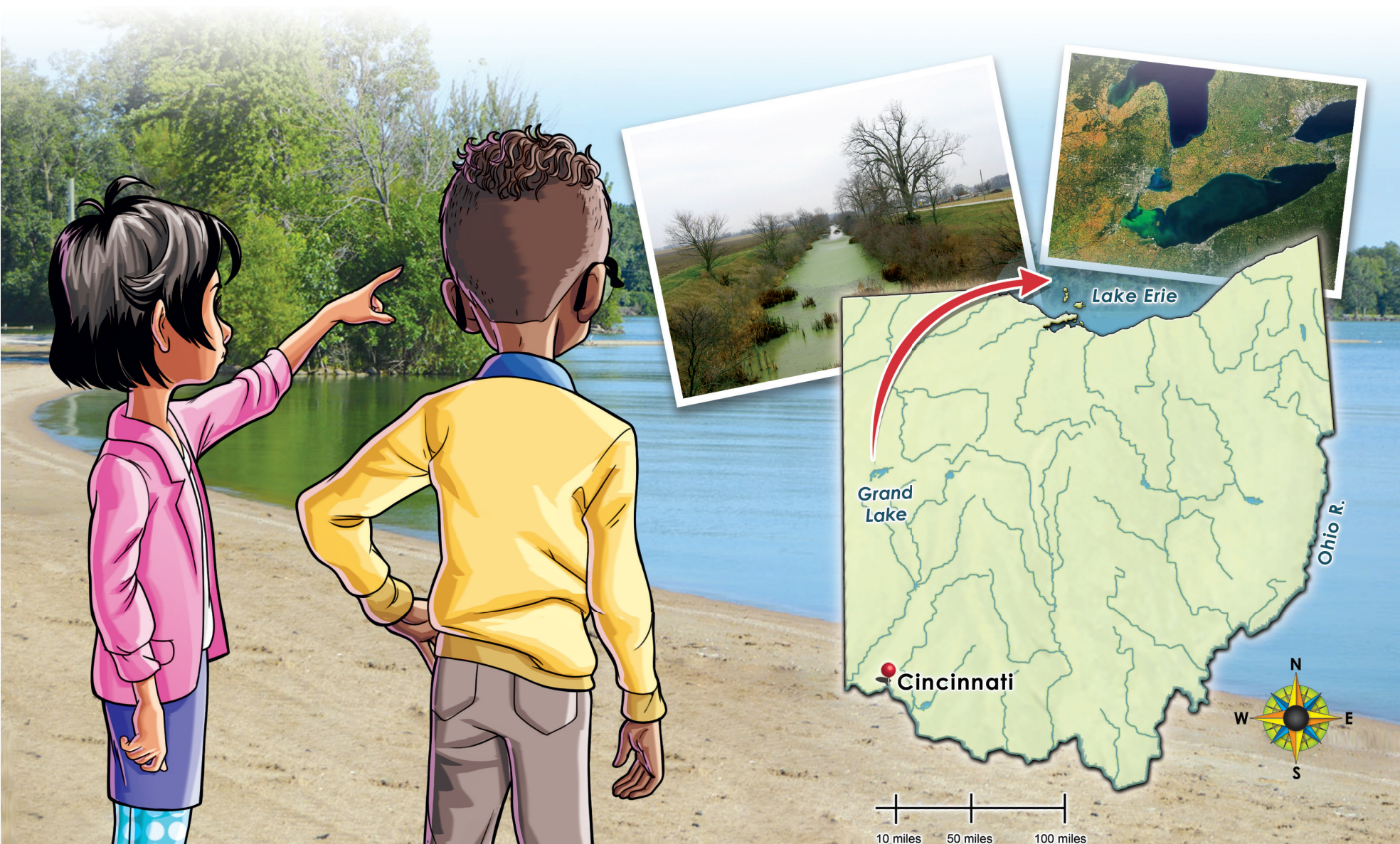
Natalia said.

"Well, the Grand Lake is now mainly for folks like you two—as a recreational area for you to enjoy nature at its fullest. But at the beginning, it was built to feed water into the Erie Canal, which connected the Great Lakes with New York. Sometimes, certain areas have less water than others, so humans built lakes and canals to move water to these areas."

The ranger tipped his hat at Natalia and Steven. "I wish I could keep chatting, but I do need to tend to my other duties. You two enjoy your time here at the lake, though!"

Natalia and Steven waved goodbye to the ranger. "Huh," said Steven, "I had no clue humans had actually shaped the earth like that."

"It seems there's a lot we still have left to discover, right, Steven?" Natalia smiled at her friend. They linked arms and started walking around the Grand Lake, marveling at the human-made lake.





## How Humans Shape the Earth

As we've learned, humans have an impact on our Earth. This impact is shown when we reshape the Earth, as humans did to create the Grand Lake. However, humans shape the Earth in many other ways, too.

For example, think about your own neighborhood. In a neighborhood, there can be dozens of houses. However, to build these houses, often construction teams must entirely reshape the land in the area. Construction teams will flatten hills or cut down trees. This helps make way for new housing developments. Drainage systems must be installed to give houses access to water. These systems require underground digging. Electricity also has to reach these houses. Wires carrying electricity are often installed underground. We change the natural land to make way for these kinds of development.

We also reshape the land for farming. Around half of Ohio is farmland. This farmland is dedicated to growing many types of crops, including soybeans and corn. Farming is an important part of Ohio's economy. However, farming does change the natural landscape. For example, creating farmland sometimes means we flatten the natural land. Farming a certain area can also affect the soil. All of this reshapes our land.

In eastern and southeastern Ohio, the coal industry booms. Coal is a natural resource. This means it's a resource that naturally occurs on Earth. In Ohio, coal is extracted, or removed, from the land. We use coal in our daily lives. It is used to create electricity! However, extracting coal from the land also reshapes the land. Workers who extract coal do so with machinery. This machinery digs deep holes. Rocks and soil are removed to get to the coal. The process of mining can't help but change the landscape. Sometimes, when coal has been entirely extracted, the topsoil is replaced. However, at this point, humans have already reshaped the Earth.

Humans reshaping the Earth comes with positives and negatives. We often make choices to reshape our landscape to make room for how we live. In the United States, our houses come with certain comforts. We often choose to live in houses that have electricity and access to water. This means we build houses that will, of course, change the way the Earth looks.

However, it's important for us to think about our impact. We need to keep nature in mind when we reshape our world. When we reshape the land, we often reshape it in a way that hurts our environment. For example, humans have cut down many trees. This means we lose trees that provide food and shelter to animals. Trees also absorb carbon dioxide. They then release oxygen into our air. Trees are an important part of our natural environment. Yet, we continue to cut down many of them.

All of this is important to bear in mind when we reshape our Earth. Humans need to consider how reshaping the land affects our environment. Then, we need to decide how to balance our needs with a commitment to protecting our environment.



## What is climate change?

Climate change is a phrase you've probably heard a lot. It refers to the change in weather patterns around the world. Over the years, our world has gotten warmer and warmer. The global average temperature has risen. And, it keeps rising. This is a big cause for concern for us.

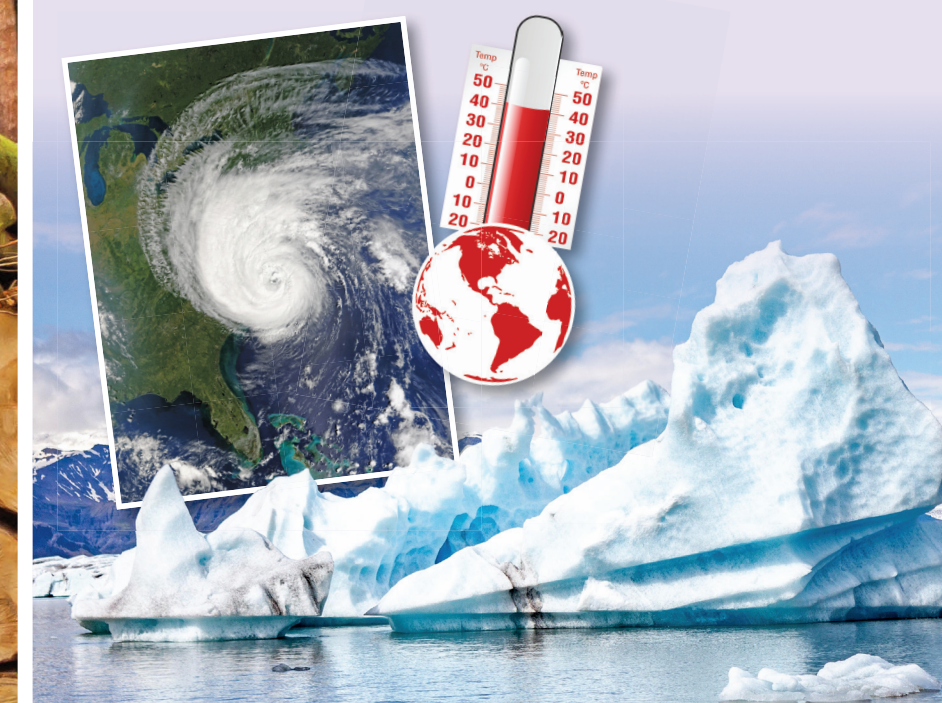
The large amount of greenhouse gases in our atmosphere has caused this increase in temperature. Greenhouse gases create a "quilt" in our atmosphere. This "quilt" doesn't allow heat to escape. Heat is trapped in our atmosphere. It causes our global temperatures to rise. Higher temperatures produce many changes in our environment.

Rising global temperatures create a domino effect. Higher temperatures have begun melting ice caps. These ice caps have existed for centuries. A higher number of droughts have been recorded in certain areas. Sea levels are rising every year. Scientists predict hurricanes will soon become stronger and more dangerous. All of these effects are due to higher temperatures.

Climate change has affected Ohio, too. Higher temperatures have been recorded in Ohio over the last decade. Heavy rains happen more frequently. Winters start and end quicker than in the past. All of these events show the effects of climate change.

But why do these events present a problem? All these events affect our environment. They affect everything that grows. When there is more or less water, this affects the growth of plants and crops. Climate change can make it hard to grow enough crops for food. Farmers will have less food to sell and people will have less food to eat. Climate change has many far-reaching effects. It is a serious global situation and one that humans need to take seriously.

Every year, more and more people demand that the government work on the problems of climate change. We need everyone to help stop the effects of climate change.



## Renewable Resources

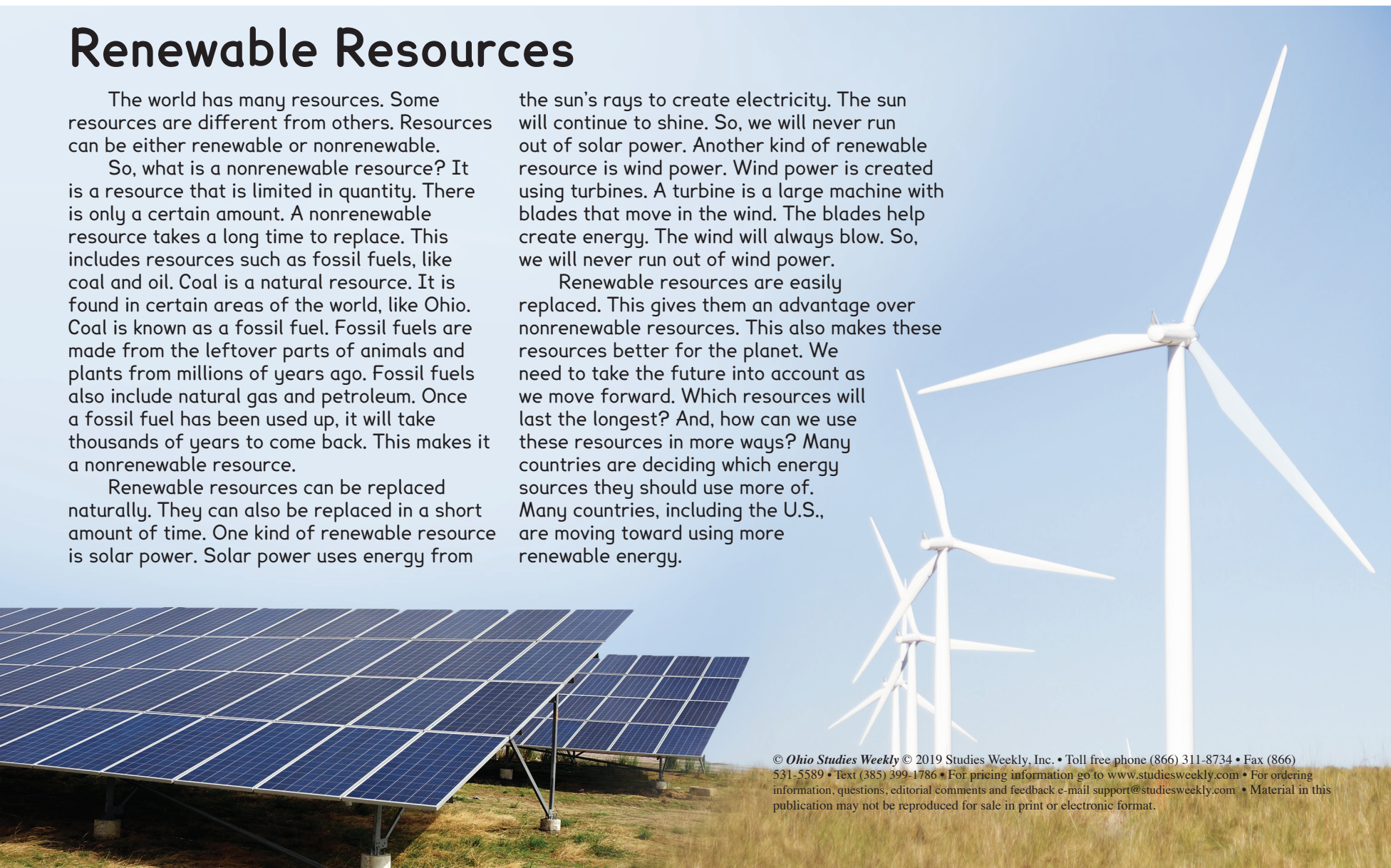
The world has many resources. Some resources are different from others. Resources can be either renewable or nonrenewable.

So, what is a nonrenewable resource? It is a resource that is limited in quantity. There is only a certain amount. A nonrenewable resource takes a long time to replace. This includes resources such as fossil fuels, like coal and oil. Coal is a natural resource. It is found in certain areas of the world, like Ohio. Coal is known as a fossil fuel. Fossil fuels are made from the leftover parts of animals and plants from millions of years ago. Fossil fuels also include natural gas and petroleum. Once a fossil fuel has been used up, it will take thousands of years to come back. This makes it a nonrenewable resource.

Renewable resources can be replaced naturally. They can also be replaced in a short amount of time. One kind of renewable resource is solar power. Solar power uses energy from

the sun's rays to create electricity. The sun will continue to shine. So, we will never run out of solar power. Another kind of renewable resource is wind power. Wind power is created using turbines. A turbine is a large machine with blades that move in the wind. The blades help create energy. The wind will always blow. So, we will never run out of wind power.

Renewable resources are easily replaced. This gives them an advantage over nonrenewable resources. This also makes these resources better for the planet. We need to take the future into account as we move forward. Which resources will last the longest? And, how can we use these resources in more ways? Many countries are deciding which energy sources they should use more of. Many countries, including the U.S., are moving toward using more renewable energy.



## Conservation

We live in a world that is affected by climate change. Our world is in need of our help. But how can we protect the environment around us?

It's important for us to remember we are global citizens. The choices we make daily affect the people around us. They affect the world around us. There are

many steps we can take as global citizens to help our environment.

First, think about the choices you make every day. Do some of these choices affect the environment? Consider this: Do you sometimes leave lights on in a room? Do you use a lot of plastic water bottles? Does your

family drive a car to different places? Now, think: How do these choices affect the environment?

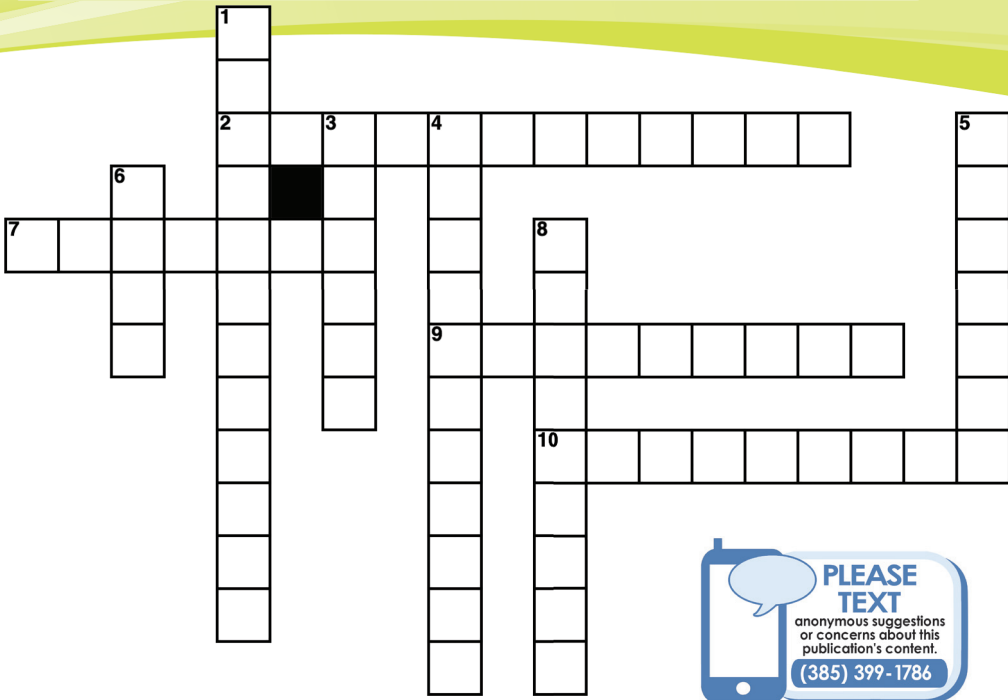
For example, we create electricity in different ways. However, all the ways we generate electricity affect our environment. For example, electricity is often made using fossil fuels. One kind of fossil fuel is coal. Carbon dioxide is created when coal is burned. This adds to our world's greenhouse gases. If we can use less electricity, that helps the environment. Less greenhouse gas equals a healthier planet. Using less electricity can be as simple as turning off the lights when we leave a room!

But, we also need to look for other solutions. We can find new ways to make electricity. This can help protect our environment. For example, solar power is less damaging to the environment. We need to start using more environmentally friendly power. This would make a big difference on our planet.

The natural world is still bountiful, but it may not always be. Conservation means showing respect for the limits of our environment. We must not take more than it can give.



Name \_\_\_\_\_



**ACROSS**

- 2. a resource that cannot be easily replaced by nature
- 7. to stop something bad from happening to someone or something
- 9. materials, goods or labor used to produce things for people to buy
- 10. a resource that nature can produce again fairly easily

- 3. the world and everything in it such as plants, animals, mountains, oceans, stars and other things not made by people
- 4. everything that is around us
- 5. weather patterns over time in a region
- 6. black rock that can burn and is used for fuel
- 8. an artificial lake or pond made to store water

**DOWN**

- 1. the act of saving something for later use



# Renewable Energy Over Time

## Activity

Have a look at the bar graph below. Then, answer the following questions.

1. What source of energy was used least in 1951? Did this change by 2017?

\_\_\_\_\_

2. Was a higher percentage of coal or natural gas used for energy in 2001?

\_\_\_\_\_

3. Which source of energy was used most over the years? Why do you think this is the case?

\_\_\_\_\_  
\_\_\_\_\_

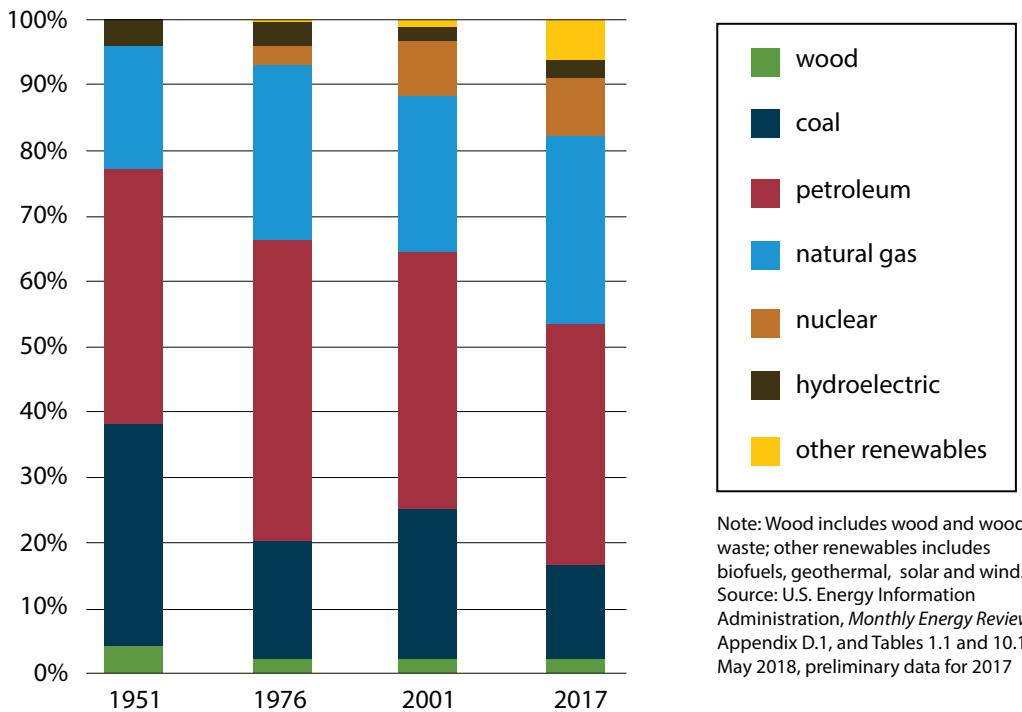
4. What does "other renewables" include?

\_\_\_\_\_  
\_\_\_\_\_

5. The other renewables category isn't found in 1951 at all. Why do you suppose that might be?

\_\_\_\_\_  
\_\_\_\_\_

Shares of total U.S. energy consumption by major sources in selected years (1951-2017)



Note: Wood includes wood and wood waste; other renewables includes biofuels, geothermal, solar and wind. Source: U.S. Energy Information Administration, *Monthly Energy Review*, Appendix D.1, and Tables 1.1 and 10.1, May 2018, preliminary data for 2017

- 1. What did Natalia and Steven expect to hear about the lake, and how does it compare with what they learned?
- 2. Describe a certain activity we take for granted that may negatively affect the Earth.
- 3. Explain how climate change can harm living things like plants and animals.
- 4. Explain how renewable energy like

### Think & Review

- wind power makes sense for saving money.
- 5. Remember learning about famous inventors? Think of one invention that has helped the environment and how it has helped.

Write a letter to your principal discussing ways that conservation can be conducted in school. This may be a new idea that you have and would like to implement. However, it may also be something that is already in place, but you have an idea on how to improve its function.

### Let's Write