Chapter 10
What's next for Washington?

What will Washington be like 100 years from now?

Sustaining a healthy natural environment

Since about 1850, when settlers first started moving to Washington, five or six generations have been born, grown up, raised children, become elders, and passed away. (A generation is usually defined as about 30 years—the time it takes to grow up and have children.)

If people from 1850 came back to life and saw today's Washington, it's hard to imagine what they would think. The loss of abundant salmon runs might make them sad. They would be shocked that vast old-growth forests had been cut down. They would be amazed that Washington is now home to nearly eight million people and three million cars whizzing around on freeways.

Illustration by Nguyen Tran

If they walked into a supermarket, they probably wouldn't have a clue what most of the food products for sale are. Frozen yogurt? Macaroni and cheese in a box? Cake mixes? To people who hunted, fished, and farmed, these would seem really strange.

Now let's think ahead five or six generations—or seven generations, which is the traditional Native American measure for thinking about the future. It's difficult to picture what our state will be like.

But we need to think about how the way we live now will affect the people who come after us. And right now, we risk leaving the people of the future a state where salmon are extinct, the water and air are unhealthy, and climate change and rising sea levels have harmed many communities.

That's why people are talking about *sustainability*. That means finding ways to meet our needs without taking away the ability of people in the future to meet their needs. To do that, we have to take better care of the natural world that sustains us all.

Sustainability

The United Nations defines sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

Democracy, citizenship, and our future

Because we live in a democracy, we all shape the future. We do this in many ways: by helping pass laws, by volunteering in our communities, and by the way we live and the resources we use.

image 1954.27.1 courtesy Washington State Historical Society, Tacoma, WA

image courtesy Leslie Hoge Design

Grocery stores have gone from being small shops with food from nearby farms to giant buildings (with huge parking lots) full of packaged food that comes from all over the country and the world.

art by MWillowsIllustration

All butterflies need flowers—and many kinds of butterflies need their own special kinds of flowers. That's why it's important to make sure we have lots of different flowers in our gardens and in our wild lands.

Citizens have been doing all these things for many years. For instance, many worked to pass laws to help us protect clean water, clean air, farmlands, and forests. Here in Washington, citizens worked to pass laws to clean up toxic waste and to manage the way cities and towns grow so that they don't sprawl out into farmland and forests.

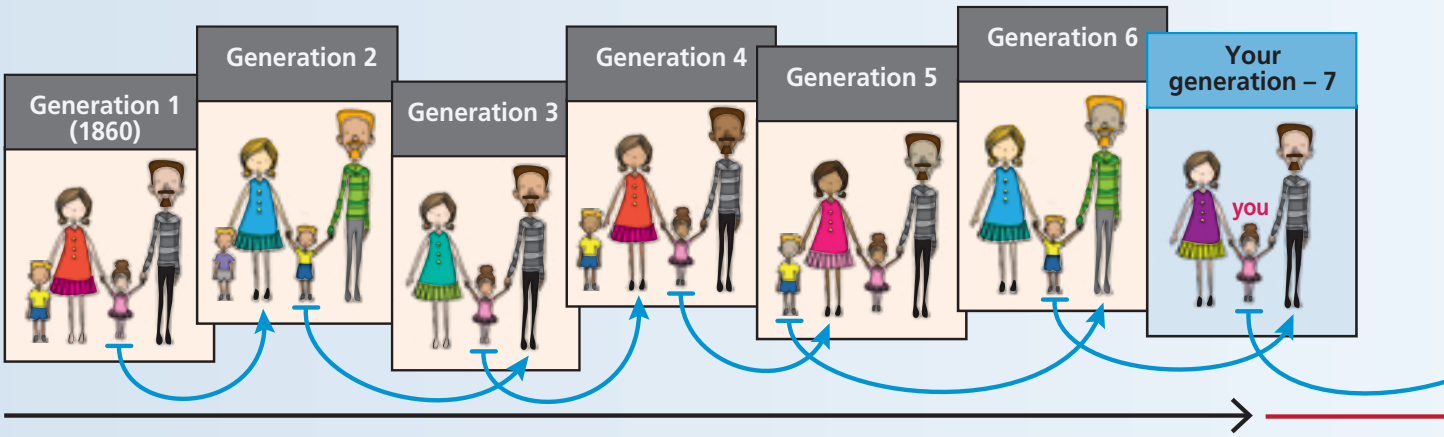
But there is more to do, and your generation will face some of the hardest challenges. Today's young people benefit from the progress their parents' and grandparents' generations made. But you also will have to deal with all the mistakes they've made and all the work they left undone.

Population growth, pollution, and climate change

In 1853, the first census in Washington counted 3,965 White settlers. They didn't count Indians, so we will never know how many more Indians than settlers lived here. Today, nearly eight million people live in Washington.

We have no idea how many people will live here a century from now. In just 30 years, King County alone will add about half a million. Some rural Eastern

Seven-generation thinking: *If we define a generation as about 30 years, seven generations would be about 210 years. What can we do now to ensure that people born seven generations from now will have clean water, fresh air, enough food, and a healthy earth?*



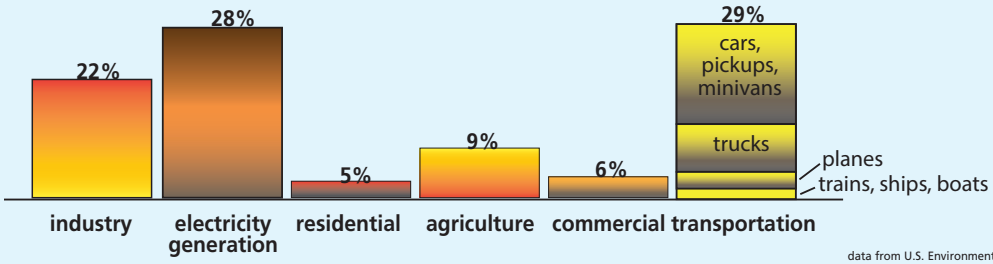
art by MWillowsIllustration

Sources of greenhouse gases in the United States

This chart shows all the major sources of greenhouse gases. You can see that transportation is a pretty big source.

Within transportation, the biggest sources are ordinary cars, trucks, and motorcycles. This includes SUVs, pickup trucks, and vans. Together, they produce 59% of the transportation greenhouse gases. The next biggest sources are big freight trucks (23 percent), and airplanes (9 percent).

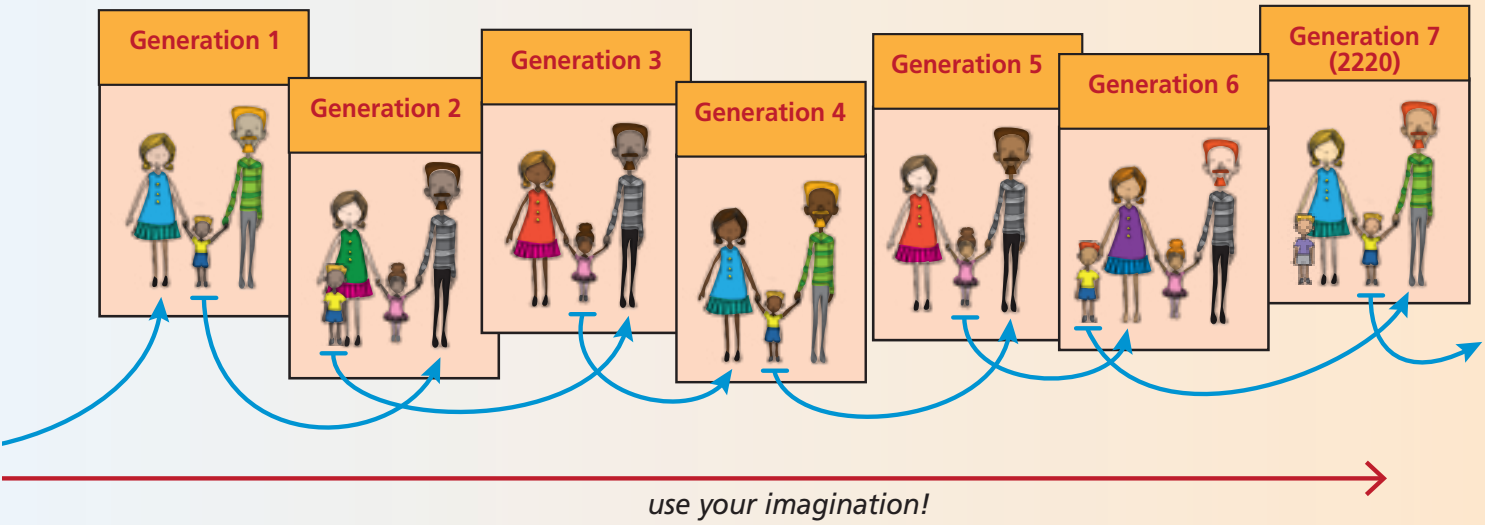
Counts of national greenhouse gas emissions don't include things that cross national borders, such as planes that fly to or big ships that carry goods to other countries.



data from U.S. Environmental Protection Agency

Washington counties might not grow that fast, but still, we're pretty sure that there will be a lot more people in our state.

If all these people live like most of us do today—driving cars and living in single-family houses—it will mean more land used for new housing developments, more cars, and a lot more air pollution.

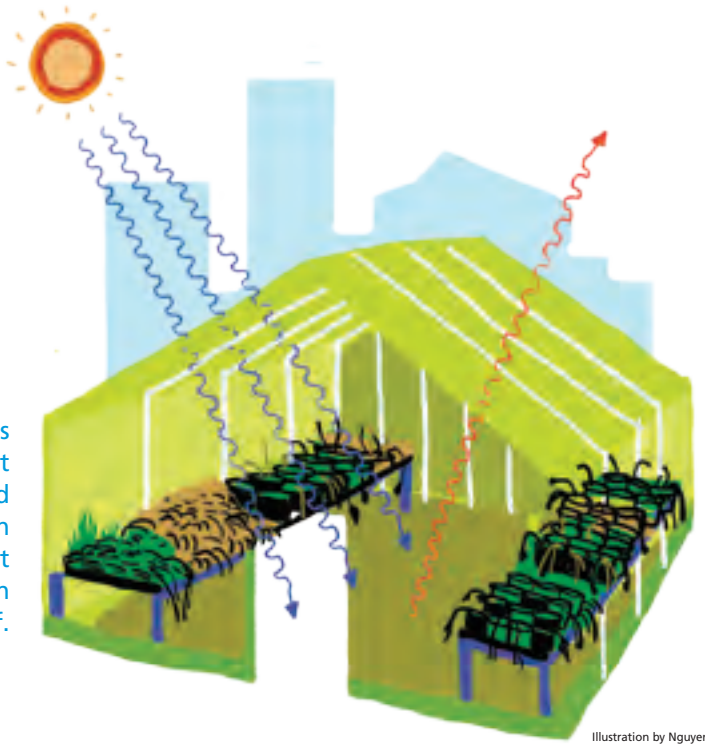


In fact, if we keep adding more people, more cars, and pollution, by 2050, experts predict that King County alone is likely to have 132 more deaths from air pollution per year between May and September.

Climate change will make these problems much worse. In the years since 1850, our economy has been fueled by oil, gas, and coal—all of them fossil fuels that come from deep inside the earth.

Burning these fuels produces large amounts of greenhouse gases that form a shield that traps more and more heat from the sun. (This is called the *greenhouse effect* because that's how greenhouses work: the glass lets all the sun's heat in and traps it inside so most of it can't get out.)

When the earth warms up, scientists say we will have wetter winters and drier summers, more severe storms, and earlier melting of snow on the mountains. When snow in the mountains melts earlier, it may cause rivers to flood in the spring, and then run low or even go dry in the summer when farmers need water for their crops, cities and towns need water for people, and fish need cold water.



The "greenhouse effect" is what happens when hot sunlight hits the earth and is held there, like the air in a greenhouse, and can't rise and escape fast enough for the earth to cool off.

Illustration by Nguyen Tran

And there's another problem with low water in our rivers in late summer: In Washington, we rely on electricity that comes from the power of water rushing over dams in rivers.

When rivers run low in the summer, the dams can't produce much power. And if it gets hotter in the summer, demand will increase for electricity to power air conditioners. Although the dams can produce more power in the winter and spring, when rivers run high, we don't have a way to store that power so it can be used later. (Maybe you will grow up and invent a way to do this!)

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Destructive wildfires near Ellensburg in 2013

Hotter, drier summers will also mean more wildfires, which can get out of control and burn down people's houses and other buildings.

The oceans will also be affected by climate change. As the water in the oceans warms up, it expands (takes up more space). At the same time, a lot of ice near the North and South Poles is melting already, adding more water to the earth's oceans. All this will cause the sea level to rise. A rising sea level could destroy buildings close to the shore.

photo courtesy Institute for Community Leadership

The Martin Luther King Jr. quote on this recycling truck says "The time is always right to do what is right," and these students are taking that to heart by promoting recycling.

At the same time, the oceans are becoming more acidic (like pouring vinegar in the water), which makes it harder for creatures such as crabs, oysters, and clams to form shells.

We don't know how bad climate change will get, but we know that humans have already caused some warming, and the climate is continuing to change. How much hotter it gets will depend on how fast people around the world can find ways to live that don't rely on burning fossil fuels.

We already have some power sources that don't pollute, such as solar power (from the sun) and power from windmills. More people are starting to drive electric rather than gas-powered cars.

But right now, scientists and many citizens worry that we aren't changing fast enough, and that burning fossil fuels that create greenhouse gases much longer will get us in big trouble.

What can make our communities sustainable?

The Washington State Legislature and some tribal and local governments are trying to reduce the amount of greenhouse gases we produce. They are also starting to think about what we need to do to make it possible for everyone to thrive even when there are more people and the climate keeps changing. Many students and adults are working on these issues too.

photo by Kay Schultz, courtesy Capitol Land Trust

Volunteers plant trees at Capitol Land Trust's Twin Rivers Ranch Preserve to make homes for wildlife.

Here are some of the problems we need to solve to make our way of life sustainable. You will see that, in many cases, solving one problem requires solving other problems at the same time.

Transportation

photo courtesy Thurston Regional Planning Council

Most cars on the road carry only one person, but a bus or train can carry dozens of people. Using mass transit saves gas and reduces pollution.

Everyone agrees we need to burn less oil and gas to reduce greenhouse gases and air pollution. One way to do that is to reduce the amount we drive, since driving cars accounts for 28 percent of the greenhouse gases we produce. (This doesn't include energy used or pollution involved in making and fixing cars, and it doesn't include energy that trucks or buses use.)

Some things we can do include improving bus service and providing bike lanes and walking paths to make it easier for people to get around without driving cars. In the Snohomish-King-Pierce County area, a light rail train system now makes it possible to move people around with a lot less energy.

But the freeways are still full of cars, with more freeway lanes still being built. And most cars on the freeway have only one person in them.

It would also help if more people lived within walking distance of where they work, shop, and go to school. Many towns and cities are figuring out ways to cluster housing, jobs, and schools in "walkable communities." This is an uphill battle, since many suburbs are already so spread out and so reliant on cars.

photo courtesy Leslie Hoge Design

There are many creative ways to commute that don't cause pollution. A woman in this office building commutes by kayak and parks her boat by the mailboxes.

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While riding a bike is good for the environment, parents worry about their kids on busy roads. Many cities and towns now have special bike lanes for safer biking.

photo courtesy the Spokane Tribe

The Spokane Tribe is building housing to help people overcome generations of poverty. They have to be built near a natural water source, but they also try to build close to shopping, schools, and services when they can.

Two communities plan for a sustainable future

Thurston County (which includes Olympia, the state capital) and the Spokane Tribe both wrote plans to make their communities sustainable.

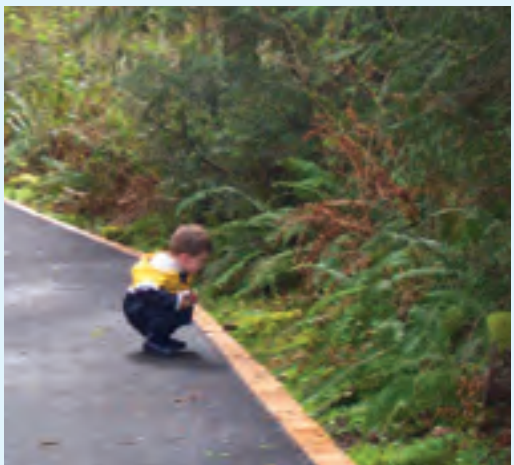
In these two very different places, they took time to hold many meetings to get citizens involved.

The Spokane Tribe's plan says "Seven generation planning and sustainability are the application of knowledge passed down to us by our ancestors to take control and direction of our community."

Thurston County described its plan as "a community conversation that will result in a vision for a vibrant, healthy and resilient future."

Two very different cultures and communities shared the same goal: planning for a healthy future for everyone.

When people live in denser neighborhoods, it leaves more open space for trails and parks.



But many younger people and many older, retired people now want to live in smaller apartments or homes where it's easy to go to the stores, movies, school, or jobs without a car.

Still, if you live in a rural area with no buses and you don't have a car, you're really stuck.

Land use and urban planning

Transportation is closely linked to the problem of "suburban sprawl," that is, the practice of building more and more suburbs that are farther and farther from jobs, shopping, and other places people need to go.

A state law passed in 1990 called the Growth Management Act helps limit this. The law requires most cities to create "urban growth boundaries" and to build only inside those boundaries.

More compact, denser cities would not only help reduce driving, they would also save money and preserve forests, farms, and places for wildlife.

Although a big house with a big yard used to be the "American dream," people are starting to see that the suburban lifestyle is costly and not that much fun. When people have to drive long distances to get to work, they have less time with family. They also have less time to get to know their neighbors or volunteer in their communities.

Denser, more walkable communities are now seen as the new ideal. But the vast suburbs we've already built will be with us for a very long time.

photo courtesy Leslie Hoge Design

This walkable community has a grocery store and other shops on the ground floor and apartments above. It also has a handy bus stop and bike lanes so people who live here don't need to own cars.

Water, stormwater, and wastewater management

Thinking about water—where it comes from, how we use it, and where it goes—might seem boring. But if we went even one day without clean water, we would be so thirsty we wouldn't be able to think about anything else.

Today, thinking about water is more important than ever. Some communities have had to stop building new houses until they could find more water to serve them. In some streams and rivers, so much water has been taken for human use that there isn't enough left for fish to swim in.

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Where our water comes from is just half the problem; the other half is where it goes.

Wastewater—the water that goes down the drains in our houses and businesses—is treated to remove solid waste (like poop) and other pollutants. Then the cleaned-up water is piped into streams, rivers, or Puget Sound.

In rural areas, people use septic tanks to collect household wastewater and let it soak into the ground. However, areas close to rivers, lakes, or salt water have problems with older septic tanks that don't work very well. When septic systems fail, pollution can seep into the water.

Kids can change the world!

Mari Copeny was just eight years old when she wrote a letter to President Barack Obama to ask him to do something about her hometown's water problem.

In Flint, Michigan, the government had changed the source of the city's water to save money. But the new water source, the Flint River, was polluted and it made people sick. The water also picked up a lot of lead from the city's very old pipes. Even tiny amounts of lead can harm young children's brains.

To her surprise, President Obama came to Flint to meet her. He declared Flint's polluted water a national emergency, and got $100 million to help fix it. That helped a lot, but many people in Flint still don't have clean water, because it will take many years to replace all the old lead-tainted pipes.

Mari went on to lead many more campaigns. She raised money to buy bottled water for people, backpacks filled with school supplies, books for students who needed them, and even tickets to the *Black Panther* movie for kids.

She is also working to fight climate change and to promote girls' and women's rights and science education. She even gave a speech at a United Nations global Girl Up Leadership Summit.

Mari Copeny gets a big hug from President Barack Obama.

photo by Pete Souza, in the public domain

Some local utilities are working to treat wastewater so thoroughly that it can be reused—if not to drink, at least for watering golf courses and parks. But just in the last few years, scientists are finding traces of the medicines we take and the personal care products we use in the water we release. Even in trace amounts, some of these things may harm the health of fish and other creatures.

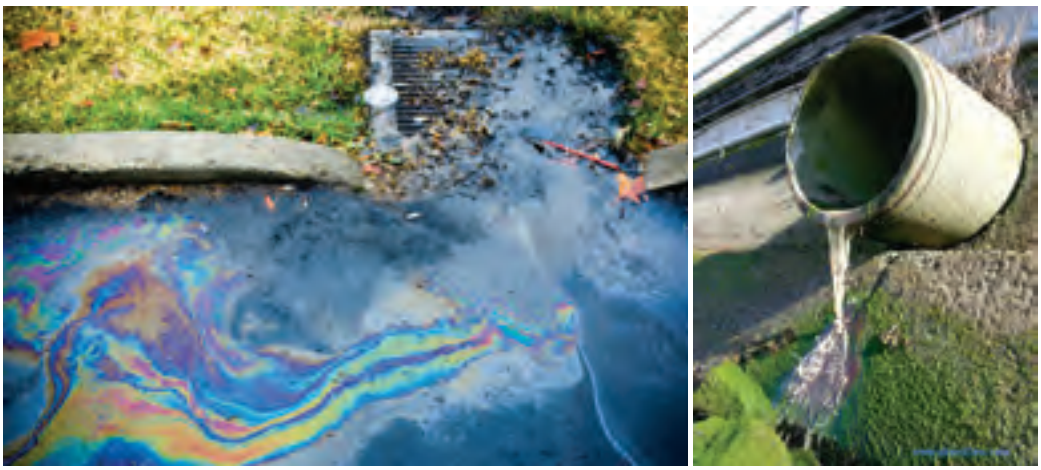
photo courtesy Leslie Hoge Design

A small community well in Jefferson County provides water to about 40 families.

Stormwater: Not what it sounds like

Stormwater is different from wastewater; it's the water that runs off roofs, roads, sidewalks, and parking lots. The term *stormwater* is confusing because it doesn't really have much to do with storms. Stormwater is created anytime it rains or snows, even a little bit.

Most of this stormwater is piped directly is piped directly into streams and rivers without any treatment to remove pollution. Stormwater contains things like copper that runs off roofs, and pollution from brakes, tires, and cars that leak oil or other fluids. Stormwater is the biggest source of pollution in Puget Sound.



Stormwater that goes directly into rivers, streams, lakes and salt water is a big source of water pollution that can be very harmful to fish and other creatures.

photo courtesy Leslie Hoge Design

This family has solar panels that produce electricity from the sun. They also have big containers that hold rainwater that runs off their roof. In the summer, they use it to water their vegetable gardens.

When there is a heavy storm, great gushing amounts of water run off roofs and paved surfaces and into rivers and streams. So much of it all at once can wash away fish eggs and harm other creatures in a stream or river.

New housing developments and buildings now have to keep stormwater on their property, rather than piping it into nearby lakes or rivers. To do this, they dig ponds to collect the water that flows off roofs, sidewalks, streets, and parking lots. The water then soaks slowly into the ground under the pond. Pollutants from roads and roofs are filtered by the ground under the ponds. These ponds may be completely dry during the summer, but they do their work when it rains or when snow melts.

Although new buildings have to do this, people are still struggling to keep the stormwater from older houses and buildings out of streams, rivers, lakes, and Puget Sound.

Can you think of a way to do that?

Sustainable agriculture

Apples, cherries, pears, wheat, potatoes, hay, hops, grapes, dairy products, and beef are among the biggest crops in Washington's farm economy. In spite of climate change, scientists predict that farmers will be able to keep growing most of these crops for the next 20 years or so. They may have trouble getting enough water in dry years, though.

photo by Scott Haydon photography, courtesy Washington Farmland Trust

Cheryl the Pig Land and Friends have a 56-acre farm in the Puyallup Valley where she produces pork, sausage, steaks, lamb, chicken, and blueberries. The Washington Farmland Trust saved the land from development in 2010.

photo by Melissa Thompson Photography, courtesy Washington Farmland Trust

At this farm in the Snoqualmie Valley, volunteers sometimes come to help with special projects or to learn how to grown food themselves.

But the Washington State Department of Ecology predicts crop losses of 25 percent (one quarter) by the end of this century due to climate change. That's a serious problem because there will be more people to feed.

Climate change will also affect farming in other areas of our country and the world, and those changes are likely to be so big it's hard to imagine. Once the climate really starts changing, it will keep changing for a long time.

Areas of the earth that are too cold to grow food now may warm up enough to be good croplands for a while, but they might also eventually get too warm, or run short of water.

If all this happens—or how much of this happens—will depend on whether countries around the world reduce greenhouse gas emissions soon enough to prevent huge, long-term global warming.

One way people try to help reduce the danger of climate change is to consider the "carbon footprint" of the food we eat. That means thinking about how much fossil fuel it takes to grow food, make it into the products we buy, and ship it to our grocery stores. If we eat bananas from the Philippines, for instance, we know

images courtesy Washington State Department of Agriculture

An orchard in Klickitat County with Mt. Hood in the background.

This farmer is using a tool known as a disc harrow to break up clods of dirt and prepare the soil for planting.

photo courtesy Leslie Hoge Design

When people buy fresh food from local farmers, the food hasn't been trucked long distances. That means less gas was burned and less pollution was created.

that they had to be shipped here a long way. That means it took a lot of fuel to get them to us. If we eat macaroni and cheese that comes in a box, we know it took energy to take grains and cheese and turn it into what's inside the box—and to make the box it comes in.

Fertilizers, pesticides, and antibiotics, when used carefully, can be a big boon to food production. But they can also be a big problem when they seep into rivers and streams, or when traces of them remain in the food we eat or in our environment.

All these issues have given rise to the idea of "sustainable agriculture." But many opinions exist about exactly what that means.

Some people insist that all their food be grown without any chemical fertilizers or pesticides, and that all or nearly all of their food be grown close to where they live. They might also avoid that macaroni and cheese in a box and buy fresh food they cook at home.

photos courtesy Lilah Horwitz

More and more people grow vegetables and raise chickens or ducks for fresh eggs. Some people even keep goats in their yard for milk. They also plant berries and fruit trees and preserve the fruit for winter. There are many ways to learn how to do all this, both online and in local classes.

Energy production and use

About 70 percent (nearly three quarters) of the electricity used in Washington comes from dams on the Columbia and Snake Rivers. These dams changed our state's landscape, flooded the sites of many traditional Indian fishing villages, and often harmed fish. Because dams have such a big impact, we're not likely to build more of them, even though hydropower is considered clean power because it doesn't produce greenhouse gases.

photo courtesy Washington State Department of Ecology

Washington has one coal-fired plant that produces electricity, but it is going to change from coal to natural gas in a few years because the coal it burns causes 10 percent of our state's greenhouse gas emissions.

Washington is also a leading producer of clean wind energy, and the number of wind turbines on hillsides in Eastern and Central Washington continues to grow. Our greenhouse gas emissions in Washington are lower than most other states because we have a lot of hydropower and wind energy.

But our state does still rely on some natural gas and coal to produce electricity. And even now, we use gas and diesel fuel for nearly all our cars, trucks, trains, lawnmowers, farm equipment, buses, and boats. Many people also burn natural gas, wood, or other polluting fuels to heat homes and businesses.

photo courtesy Erik Bakke

Windy places in Eastern and Central Washington are perfect sites for windmills that produce electricity.

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Solar panels produce electricity from sunlight. Sometimes they are on rooftops; sometimes people make "solar farms" of thousands of panels that cover many acres.

Creating a sustainable economy

A sustainable economy has two main features:

- First, it doesn't use up natural resources faster than nature renews them.
- Second, it ensures that both now and in the future—seven generations from now—all people can meet their basic needs for food, housing, transportation, education, and health care.

These are hard goals to achieve. Our state has raised the minimum wage to help more people meet their basic needs. We've also worked hard to protect our environment, though we need to do more.

But the big challenge is figuring out how to adapt to the global changes that are beyond any one state's control. The biggest changes facing us now include:

- Growing income inequality and racism that make poverty more frequent among people of color.
- Growth of the global economy.
- Rapid pace of change in technology.
- Climate change.

Illustration by Nguyen Tran

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Washington's businesses, farms, orchards, forests, and industries export a lot of their products to other counties. The Trade Development Alliance of Greater Seattle says 30 percent of the new jobs created in our state in the past 30 years are tied to exports to China, Canada, Mexico, and many other countries.

The exploding growth of e-commerce (buying online rather than going to a store) is creating more jobs for warehouse workers and delivery truck drivers who work for online shopping sites. It is also shrinking the number of jobs for people in stores.

Also, robots are starting to replace many of the warehouse workers who sort packages for e-commerce giants like Amazon. And soon, self-driving delivery trucks may replace the human drivers who deliver those packages.

Changing technology makes it hard to foresee what jobs will be like in the future. Some people predict that at least 20 percent of today's elementary school

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The photo at the top of this page shows a robot working in a warehouse. The photos above show students learning how to make and use robots. Smart kids! Robots will take over a lot of jobs that people do now, so these kids are thinking ahead.

photo courtesy Leslie Hoge Design

The building trades have strong unions, and carpenters, plumbers, and electricians all make good money. If you like to work with your hands, these are good jobs. And many jobs in the building industry still have strong unions that protect workers' rights.

students will work in jobs that haven't even been invented yet. Other people think there won't be enough jobs to keep everyone working.

Still, some things will remain the same. We will always need people who know how to build and repair houses, apartments, and other buildings. We will certainly need teachers for our schools and colleges, doctors and nurses to take care of our health, and farmers to grow our food. Some parts of those jobs might be done by robots or other high-tech inventions, but there probably won't ever be a robot that can come and fix your plumbing or fill a cavity in your tooth.

The big question is whether all these changes in the job market will help more or fewer people make a decent living in the future. One big worry is that we may be headed toward a society where the gap between rich and poor keeps growing, and where the middle class keeps shrinking.

photo courtesy Leslie Hoge Design

Doctors work to keep us healthy.

The one thing we do know is that the middle-class jobs of the future will require more skills than in the past—not necessarily a four-year college degree, but at the very least a vocational course at a community or technical college.

The truth is, no one has figured out how to create a 21st-century economy that is truly sustainable—at least not yet.

Can you help find solutions?

Sustainable racial and religious harmony in a diverse society

For about the last 170 years, European Americans have been the biggest share of Washington's population. But that is changing fast.

By about 2050, White people will be in the minority—they already are in Adams, Yakima, and Franklin Counties. White people are also in the minority in the cities of Bellevue, Federal Way, Renton, and Kent. Several small cities in south King County are among the most racially and culturally diverse in the nation because they have a lot of immigrants from many countries.

Yet our state—like all others—still struggles to overcome racism and religious and cultural prejudice that harm people of color in many ways. We also struggle to overcome sexist ideas that demean and discount women of all races, religions, and cultures.

Our country has a long history of both racism and the struggle to end it. Every generation must work to make progress toward the goal of equality and racial justice for all. Your generation will write the next chapter in this history.

photos clockwise from upper left courtesy: ARC of Washington; Photo by Allison Shelley for American Education: Images of Teachers and Students in Action; Allison Shelley, courtesy American Education; Denny Sparr Hurtado, Skokomish; Leslie Hoge; Sandi Fukumoto; Dawn Gibbs

Washington is becoming more diverse with every passing year, with many different cultures making our state vibrant and interesting, and that's something to celebrate.