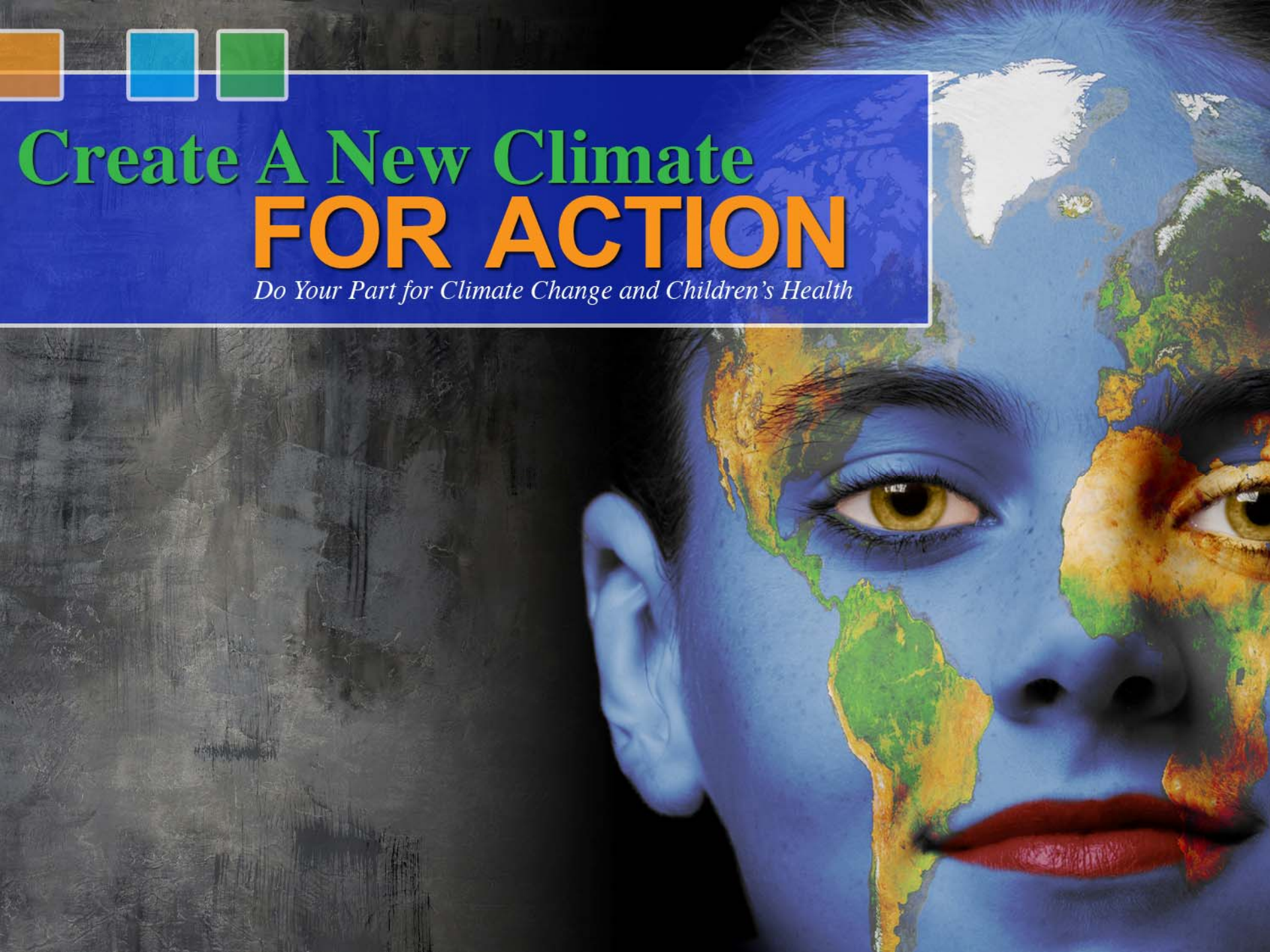
Create A New Climate FOR ACTION

Do Your Part for Climate Change and Children's Health



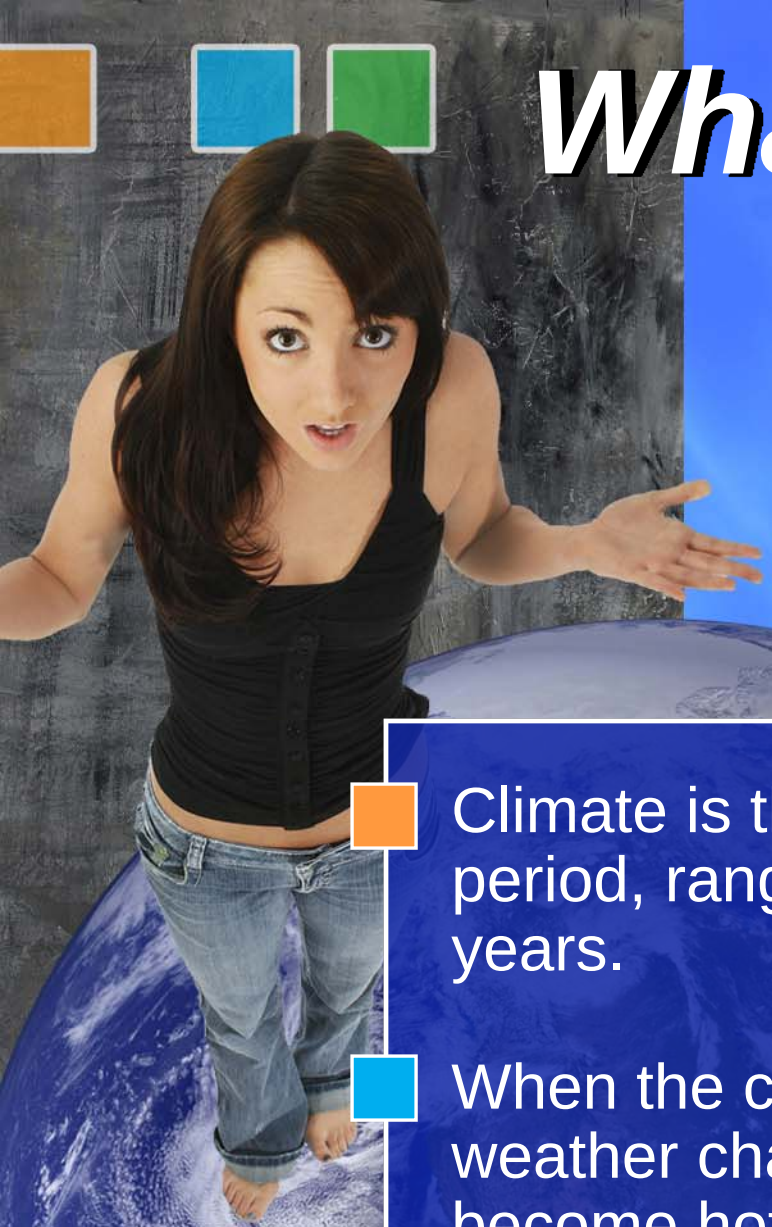

The climate is changing.
What does that mean for YOU?

First, what's the difference between climate and weather?



- Weather is what happens outdoors every day. We describe weather in terms of temperature ("it's cold outside"), precipitation ("it's raining"), wind, humidity, cloudiness, air pressure, and other factors.

What is climate?



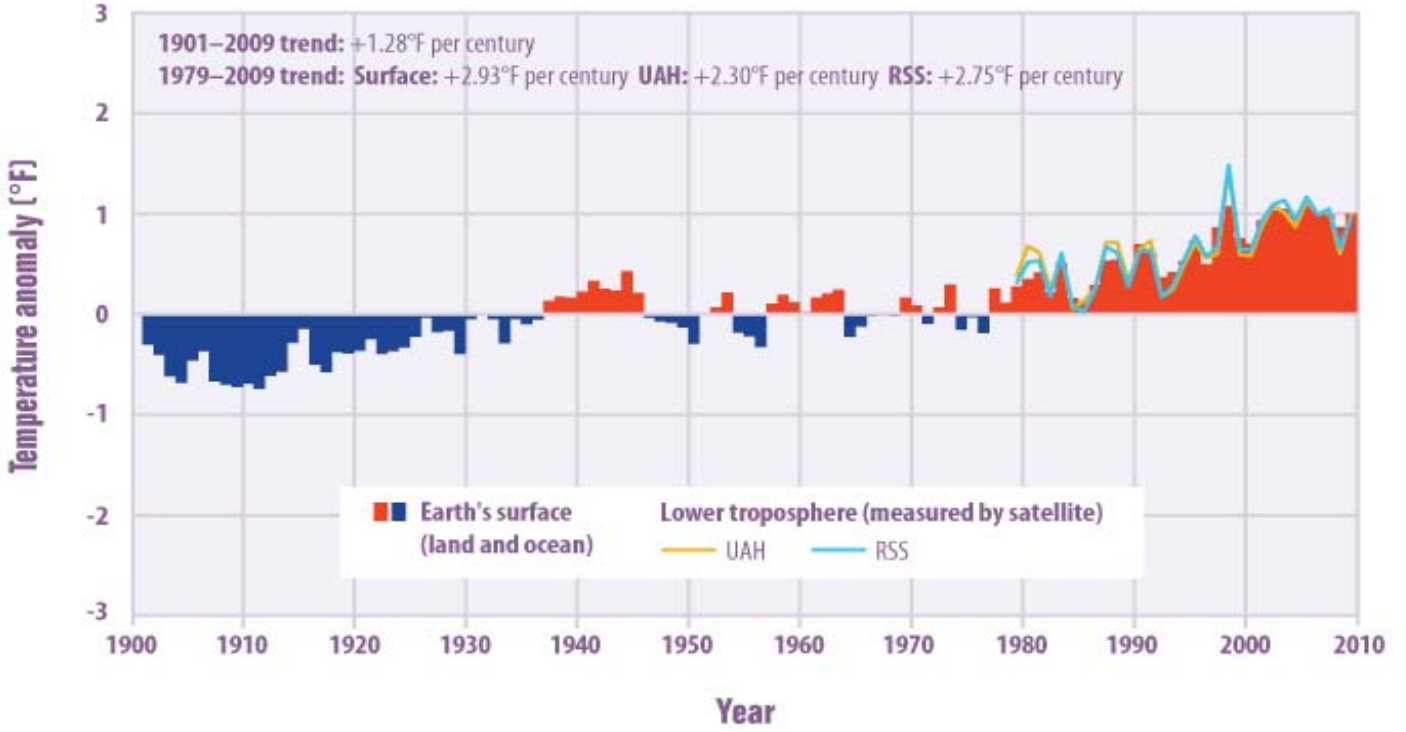
- Climate is the average weather over a longer period, ranging from months to thousands of years.
- When the climate changes, the average weather changes. For example, summers may become hotter, and winters may become wetter (more rain and sleet, less snow).

How is the climate changing?

- The Earth's average temperature is increasing. It's not warmer everywhere, but overall the planet is warmer than it used to be.
- Climate change also affects rainfall patterns and climate variables such as cloudiness, sea level, and wind speeds.

Global temperatures are on the rise.

Temperatures Worldwide, 1901–2009



Source: NOAA. 2010. <www.ncdc.noaa.gov/oa/ncdc.html>

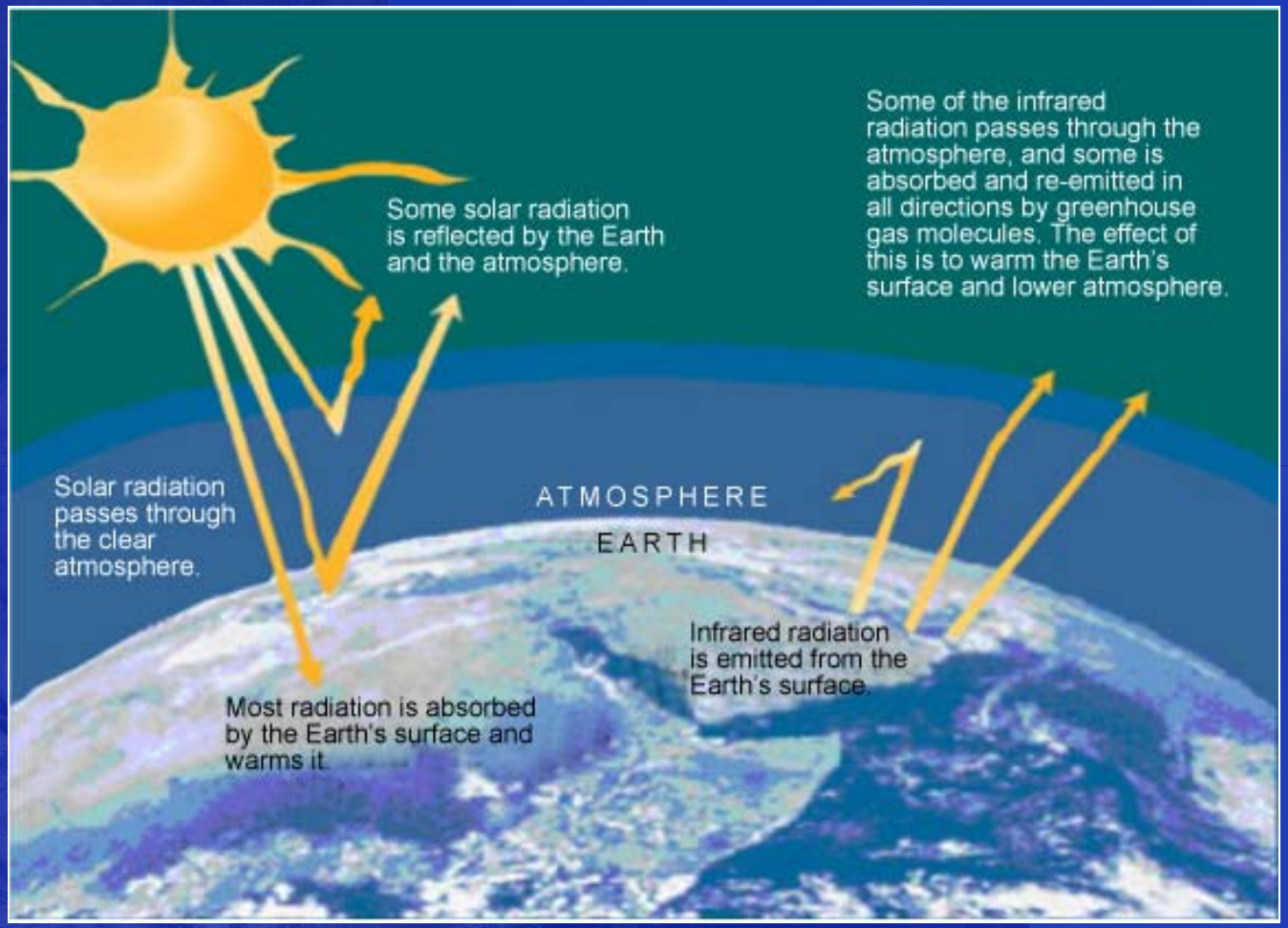
Why is the climate changing?

- Some climate change is normal and natural. The climate has changed many times in Earth's history (for example, think of the ice ages).
- However, scientists believe that most of the recent changes in climate have been caused by people.

How could *people* change the climate?

- Burning fossil fuels (such as gasoline, oil, coal, and natural gas) for energy adds carbon dioxide (CO_2) to the atmosphere.
- CO_2 is known as a “greenhouse gas” because it contributes to the natural greenhouse effect that warms the planet.

The Greenhouse Effect



Is carbon dioxide the only greenhouse gas?

- No, but it’s the one humans emit the largest amount of. Other common greenhouse gases include methane, nitrous oxide, and ozone.
- These other gases are emitted by sources such as factories, landfills, farms, and pipelines.

Is there a long-term effect?

- Carbon dioxide emissions cause increased concentrations in the atmosphere that last for hundreds to thousands of years, so the impact of the CO_2 we emit now will be felt for generations to come.
- Other greenhouse gases can remain in the atmosphere for decades to thousands of years .

Isn’t the greenhouse effect natural?



- Yes, most greenhouse gases occur naturally and include water vapor, carbon dioxide, and methane.
- The greenhouse effect has always existed. In fact, the planet would be 60º Fahrenheit colder than it is today without the natural greenhouse effect.

If the greenhouse effect is natural, *what's the big deal?*



- Greenhouse gases are building up in the atmosphere faster than they can be removed by natural "sinks" such as trees and the oceans. That's causing the climate to change.
- Scientists believe it will change even more in the years ahead.

How do we know the climate is changing?

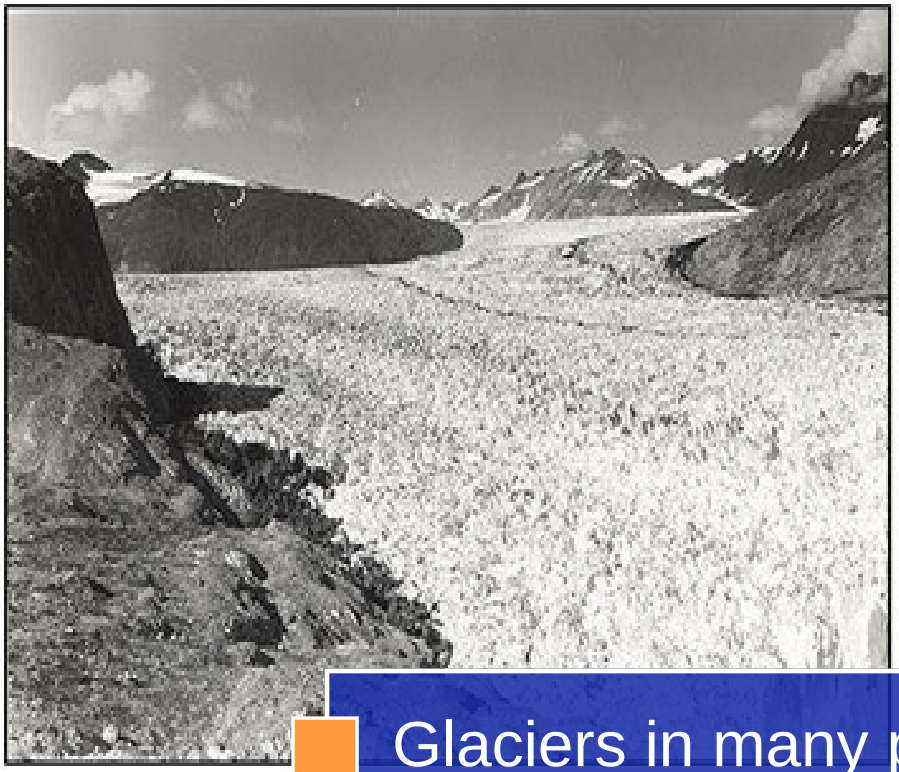


- Years of weather station data from all over the world show that the climate is changing.
- Scientists also use indirect measures of temperature and precipitation (such as tree rings and pollen samples) to reveal changes in climate that occurred before people started keeping records.

How do we know that greenhouse gases are increasing?

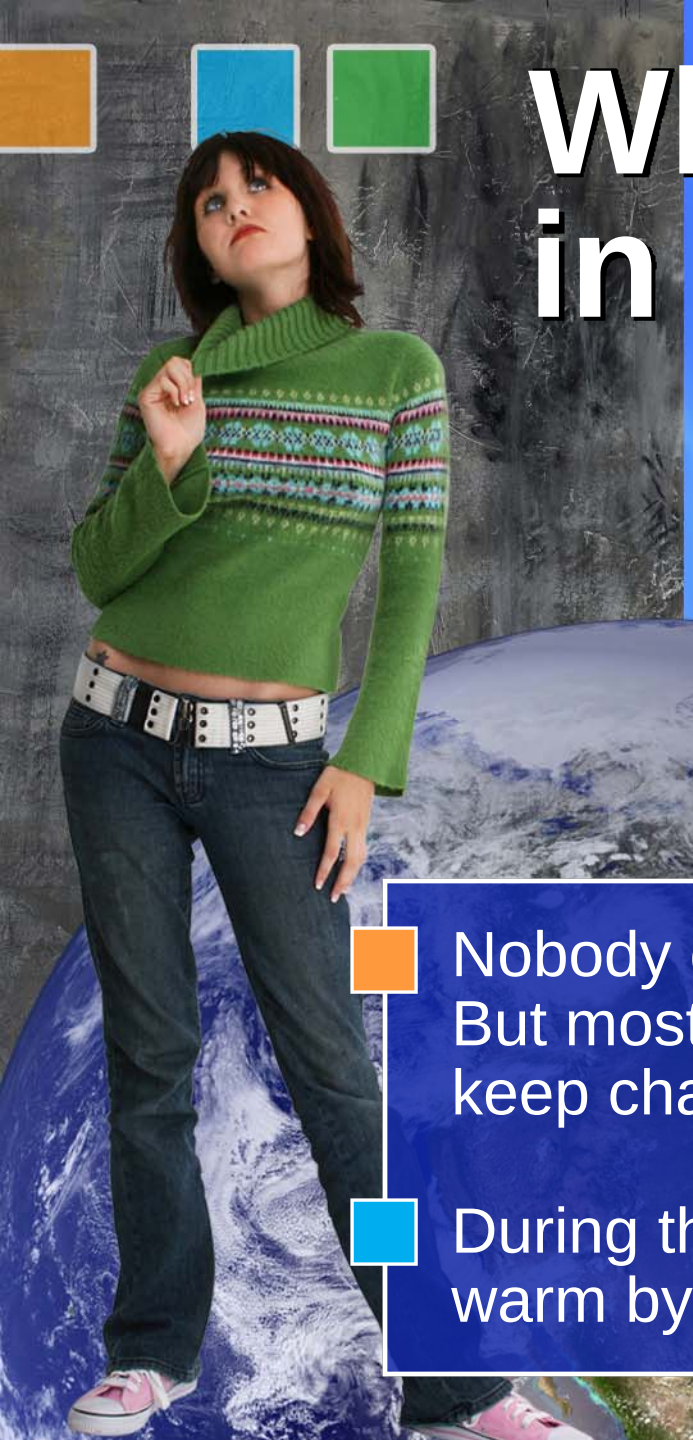
- Collected air samples show that greenhouse gas concentrations are increasing in the atmosphere.
- Ancient air bubbles trapped in glacial ice show that CO_2 concentrations are higher now than at any time in the last 650,000 years.

More evidence of climate change:



Glaciers in many parts of the world are melting. The melting ice contributes to higher sea levels.

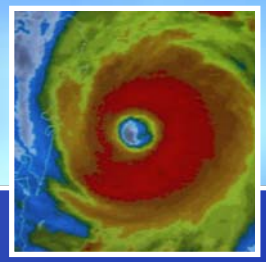
What will happen in the future?



- Nobody can predict the future with certainty. But most scientists agree that the climate will keep changing.
- During this century, the Earth is expected to warm by another 2 to 12 degrees Fahrenheit.

Why should we care if the climate changes?





- Changes in temperature, precipitation, sea level, and weather patterns could have important effects on plants, animals, and people.
- Some of those effects could be welcome, such as longer growing seasons in the North, but others may be harmful, such as heat waves and poor air quality.

Some of the potential effects of climate change:



- Warmer temperatures may cause some plant and animal species to shift their ranges northward.
- Droughts and floods may become more frequent in some areas.
- Higher sea levels may increase coastal flooding and erosion.
- Agriculture may benefit in some areas but suffer in others.

A global problem with local effects

- Climate change is happening worldwide, but its effects are felt differently from place to place.
- In general, wet areas will become wetter and dry areas will become drier.

How could climate change affect children's health?

Do you have asthma?



- A warmer climate may decrease air quality.
- Higher temperatures increase the formation of ground-level ozone, the main ingredient in urban smog.
- Smog can make it harder to breathe, especially for people with asthma.

Do you have allergies?

- Changes in temperature and precipitation could affect pollen, mold, and dust, which aggravate allergies.
- Some weed species may become more common as the concentration of CO_2 increases in the atmosphere.

Do you live along the coast or somewhere where storms are frequent?

- Floods and droughts could become more common or severe in some areas.
- Higher sea levels could increase coastal flooding and storm damage.
- Flooding could increase the risk of disease from contaminated water and food supplies.

Do you live near a forest or grassland?



- Wildfires pose direct risks to your safety and cause particle pollution (soot), which affects air quality.
- In the western U.S., the area burned by wildfires during an average year could triple with a 2 degree F increase in temperatures.

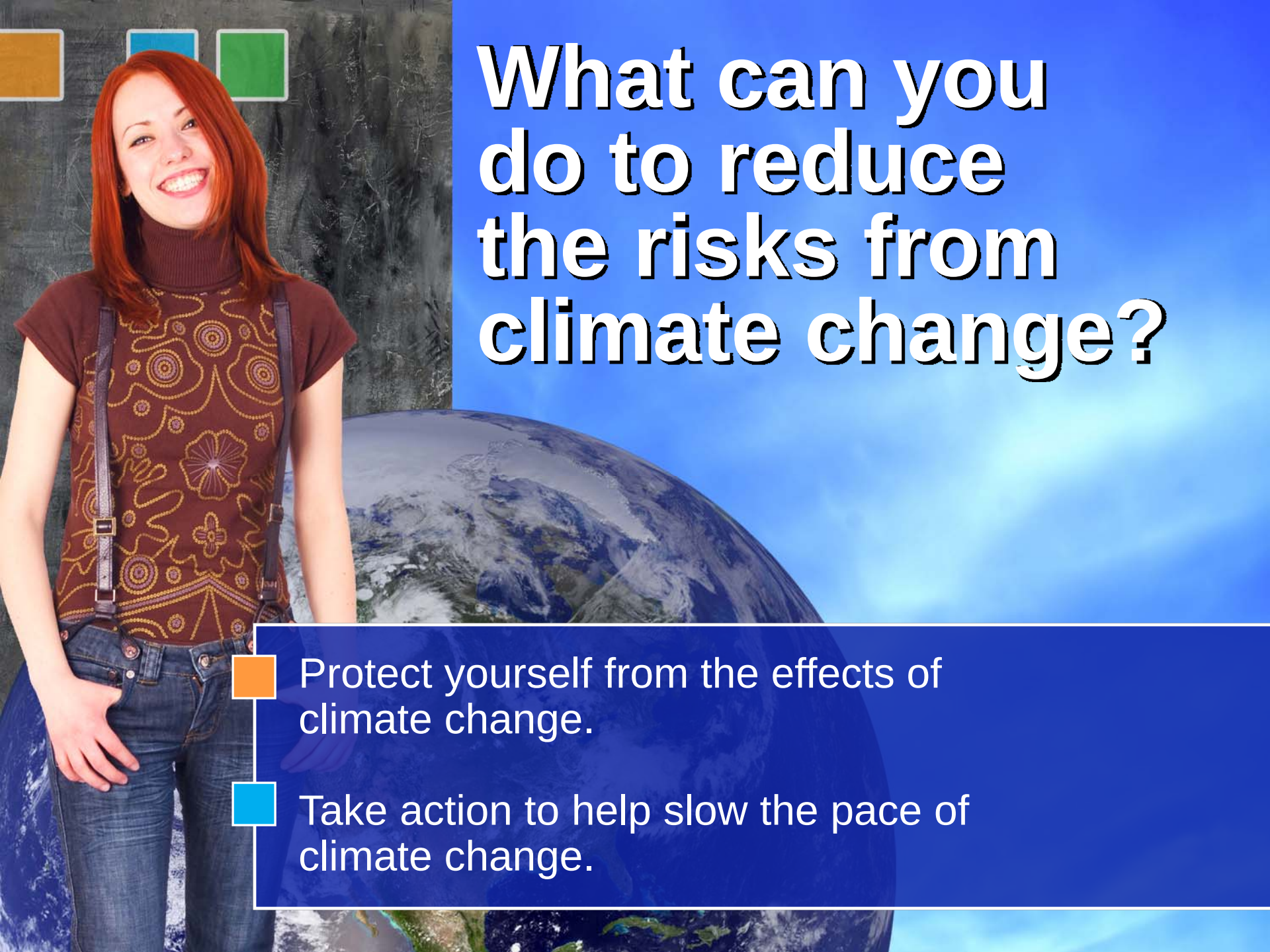
Do you spend a lot of time outside?

- Changes in climate could make conditions more favorable to mosquitoes, other insects, and animals that may carry diseases.
- Heat waves could increase the risk of heat dehydration, heat stroke, and other illnesses.

Why are children more affected?



- Children breathe, eat, and drink more for their size compared with adults.
- Their body systems are not as well developed as those of adults.
- Kids spend more time outdoors than adults, which may increase their risks.
- Children rely on adults for their care.



What can you do to reduce the risks from climate change?

- Protect yourself from the effects of climate change.
- Take action to help slow the pace of climate change.

Protect Yourself From Poor Air Quality



- If you have asthma or allergies, ask your doctor for advice on how to avoid places and situations that can cause an asthma attack or an allergic reaction.
- Check the Air Quality Index (AQI). Limit outdoor activity on poor air quality days.

Protect Yourself From Weather-Related Disasters

- Know what to do during a storm, flood, or forest fire. Rehearse emergency plans with your parents at home, just like you do at school with fire drills.
- Stay away from flooded areas after a storm because the water may be contaminated, and floodwater can cause mold to grow.

Protect Yourself From Diseases



- Wash fruits and vegetables before you eat them to remove pesticides, bacteria, and other organisms.
- If there are mosquitoes or other biting insects where you live, wear long-sleeved clothing and use insect repellent. (Follow the instructions on the label when using insect repellent.)

Protect Yourself From Heat Waves

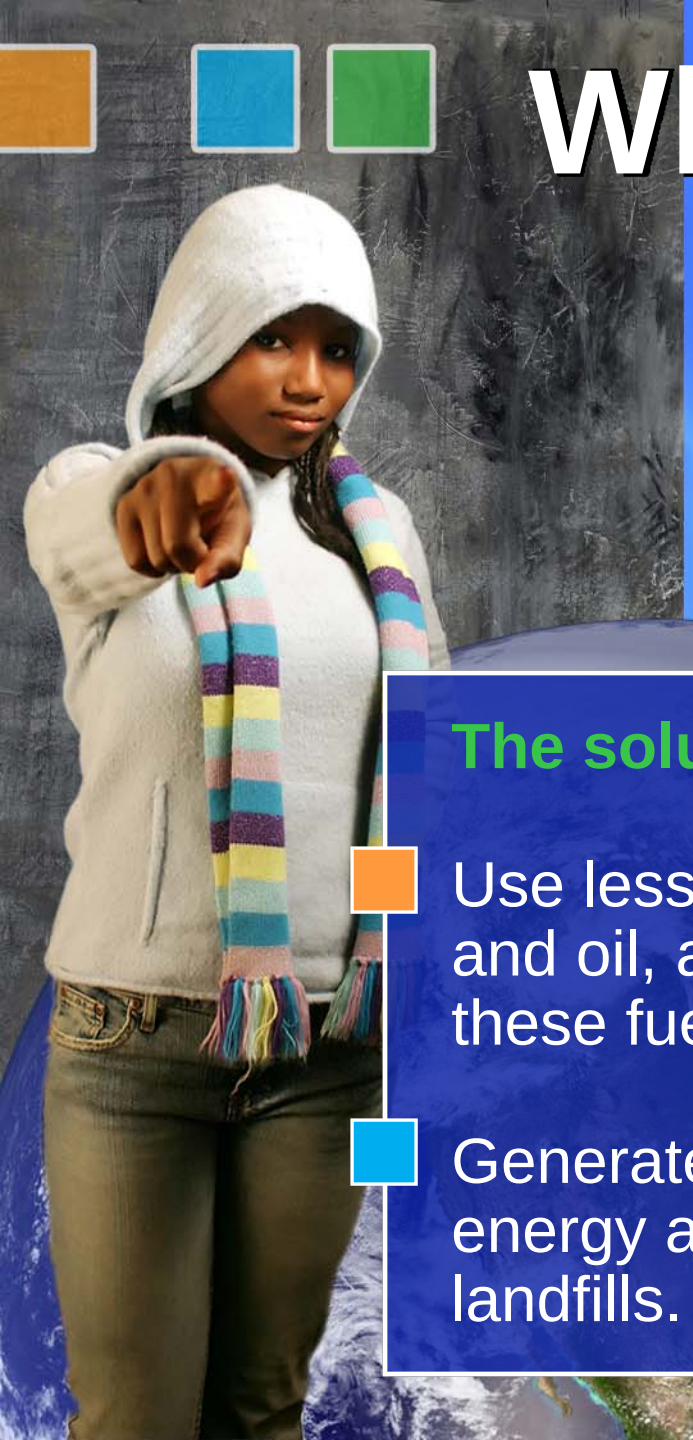
- During a heat wave, drink plenty of water and stay in the shade if possible.
- If it’s really hot outside, find indoor activities in an air-conditioned place.
- Wear light, loose-fitting clothes on hot days.

Take Action to Slow the Pace of Climate Change



- We all contribute to climate change by using energy produced by fossil fuels, by generating waste, and by other activities that release greenhouse gases into the atmosphere.
- Since we’re all part of the problem, we can all be part of the solution.

What *You* Can Do



The solutions are simple:

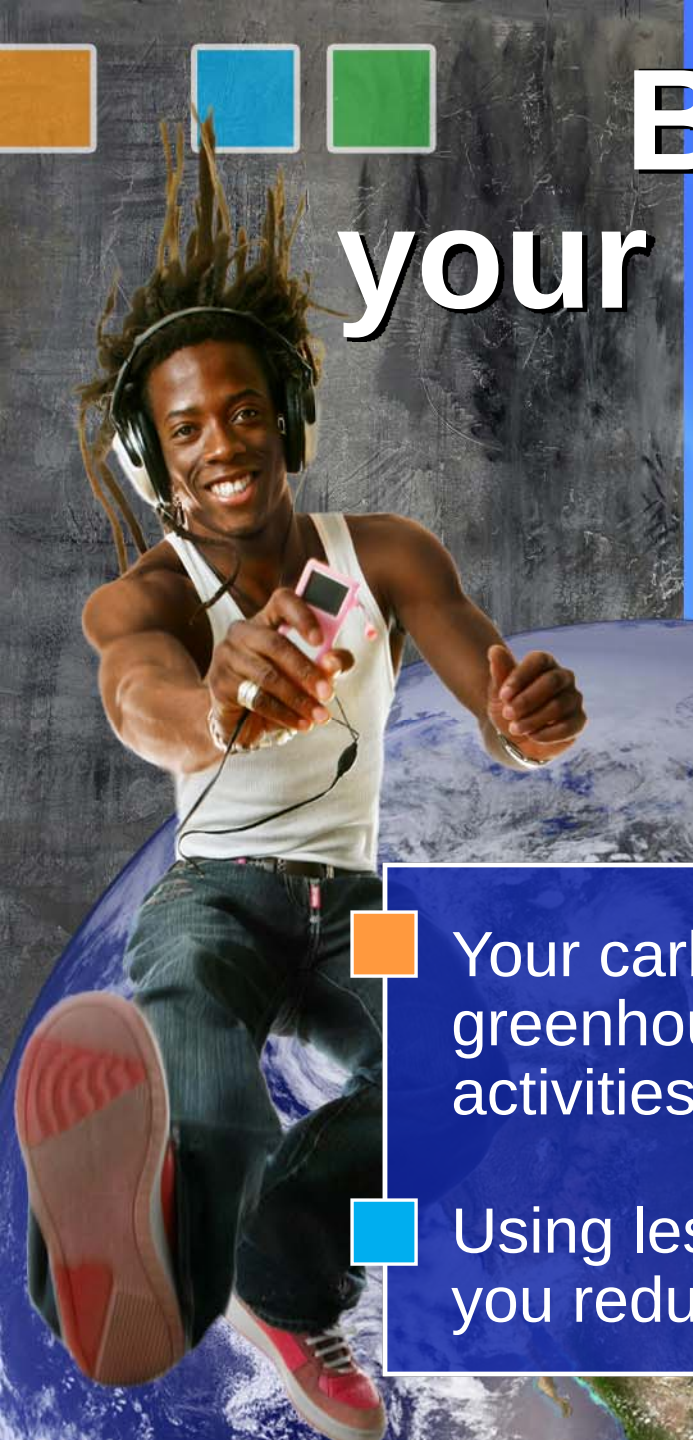
- Use less gasoline, natural gas, propane, coal, and oil, and electricity produced by burning these fuels.
- Generate less waste. Reducing waste saves energy and avoids methane emissions from landfills.

What *You* Can Do

Reduce your carbon footprint.

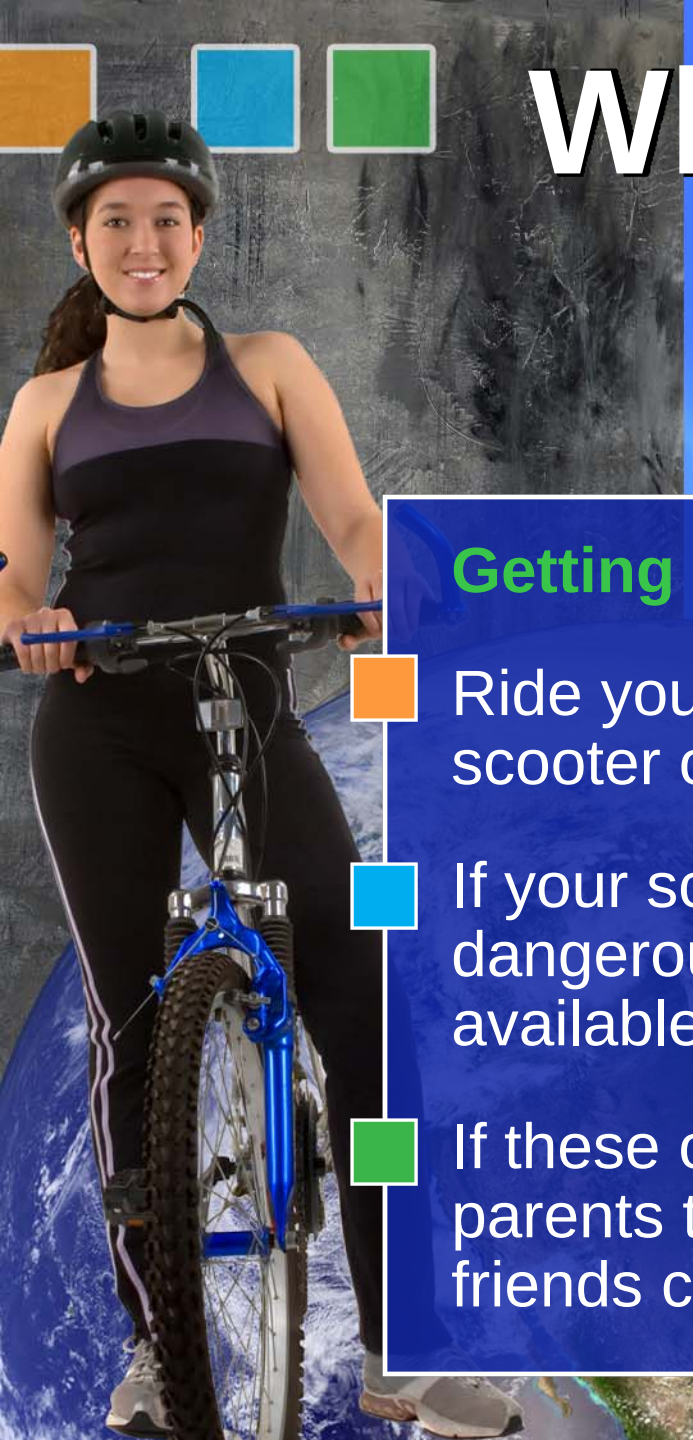
Most of us don’t pay attention to our energy use or how much waste we generate. The next few slides will show you how to change that.

But first, what is your carbon footprint?



- Your carbon footprint is a measure of the greenhouse gases that are produced by your activities that involve burning fossil fuels.
- Using less energy and reducing waste will help you reduce your carbon footprint.

What *You* Can Do



Getting To and From School:

- Ride your bike, walk with friends, or use a scooter or skateboard to get to school.
- If your school is too far away or the route is too dangerous, use mass transit (buses, trains) if available.
- If these options are not available, ask your parents to start a carpool so you and your friends can go to school together in one car.

What *You* Can Do

Getting To and From School:

- Once they have their learner’s permits or driver’s licenses, many kids think it’s no longer cool to take the bus.
- But aren’t you more “cool” if you do your part to save the planet?
- If you are able to drive to school, pick up friends along the way.

What *You* Can Do

Reducing Waste at School:

- Recycle your paper, bottles, and cans.
- Ask your school to consider using recycled paper and other products.
- Ask your school to consider composting food and kitchen waste.

You can do all these things at home too!

What *You* Can Do

Greening Your School:

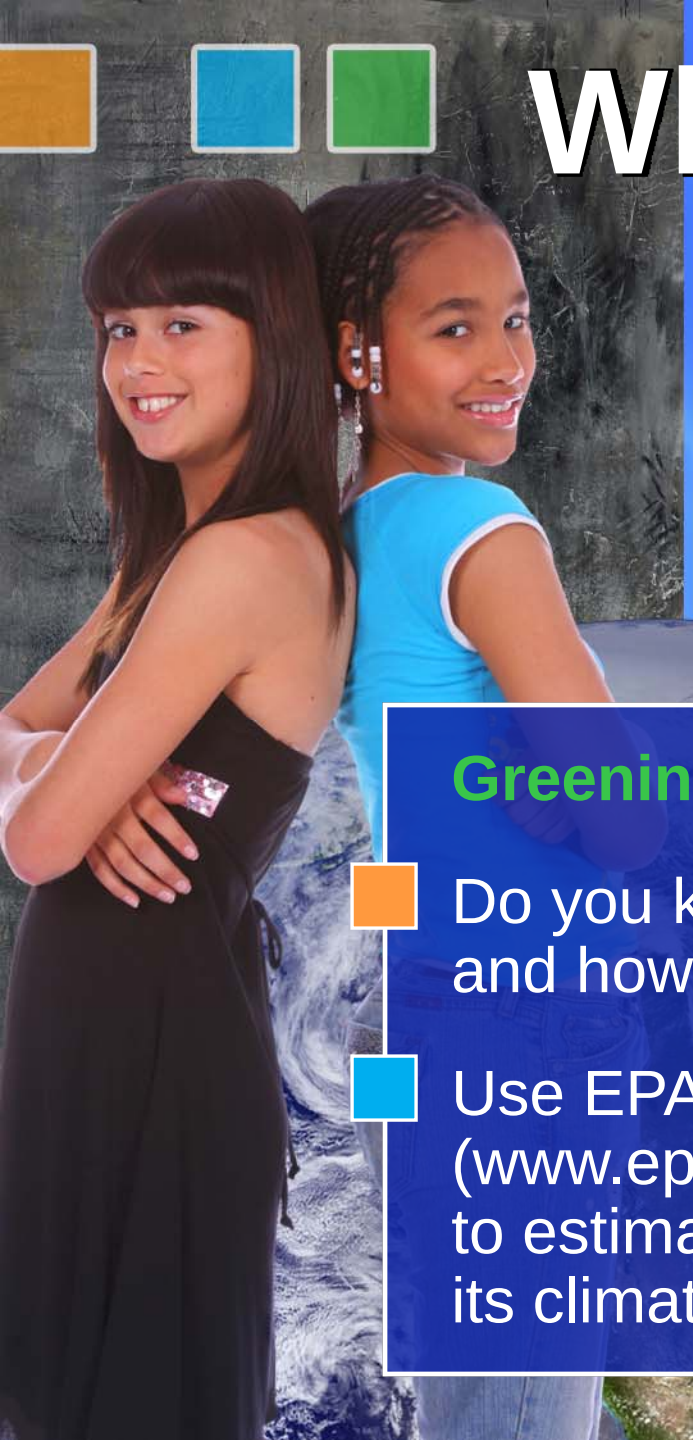
- Encourage your school to take the ENERGY STAR® Challenge (www.energystar.gov/challenge) to reduce energy use and save money.
- Planting a garden on your school's roof keeps the building cooler, reduces energy use, avoids greenhouse gas emissions, and saves money.

What *You* Can Do

Greening Your School:

- Another way to reduce fossil fuel use is to switch to renewable energy sources. Encourage your school to purchase green power generated from the sun, wind, water, and plant materials.
- Kids at many U.S. schools have developed renewable energy projects, such as solar cars. You can too!

What *You* Can Do



Greening Your School:

- Do you know where your electricity comes from and how it is produced and distributed?
- Use EPA's Climate CHECK tool (www.epa.gov/climatechange/wycd/school.html) to estimate your school's emissions and reduce its climate footprint.

What *You* Can Do

Greening Your Home: *Energy Use*

- Ask your family to replace your light bulbs with ones with the ENERGY STAR® label for energy efficiency.
- Turn off the lights when you leave a room.
- Turn the heat down in winter (and set the A/C temperature higher in summer) to save energy and emissions.

What *You* Can Do

Greening Your Home: *Electronics*

- Make sure your computer's energy-saving sleep feature is turned on.
- Turn off TVs and other electronics when not in use.
- Unplug MP3 players and cell phone chargers when not in use.
- Recycle old cell phones and other electronic equipment.

What *You* Can Do

Greening Your Home: *Water Use*

- Limit water use while you brush your teeth and wash dishes.
- If you do your own laundry, use cold water and only wash full loads.
- Dry your clothes on a clothesline or a drying rack.
- Ask your parents to install faucet and shower aerators that use less water.

What *You* Can Do

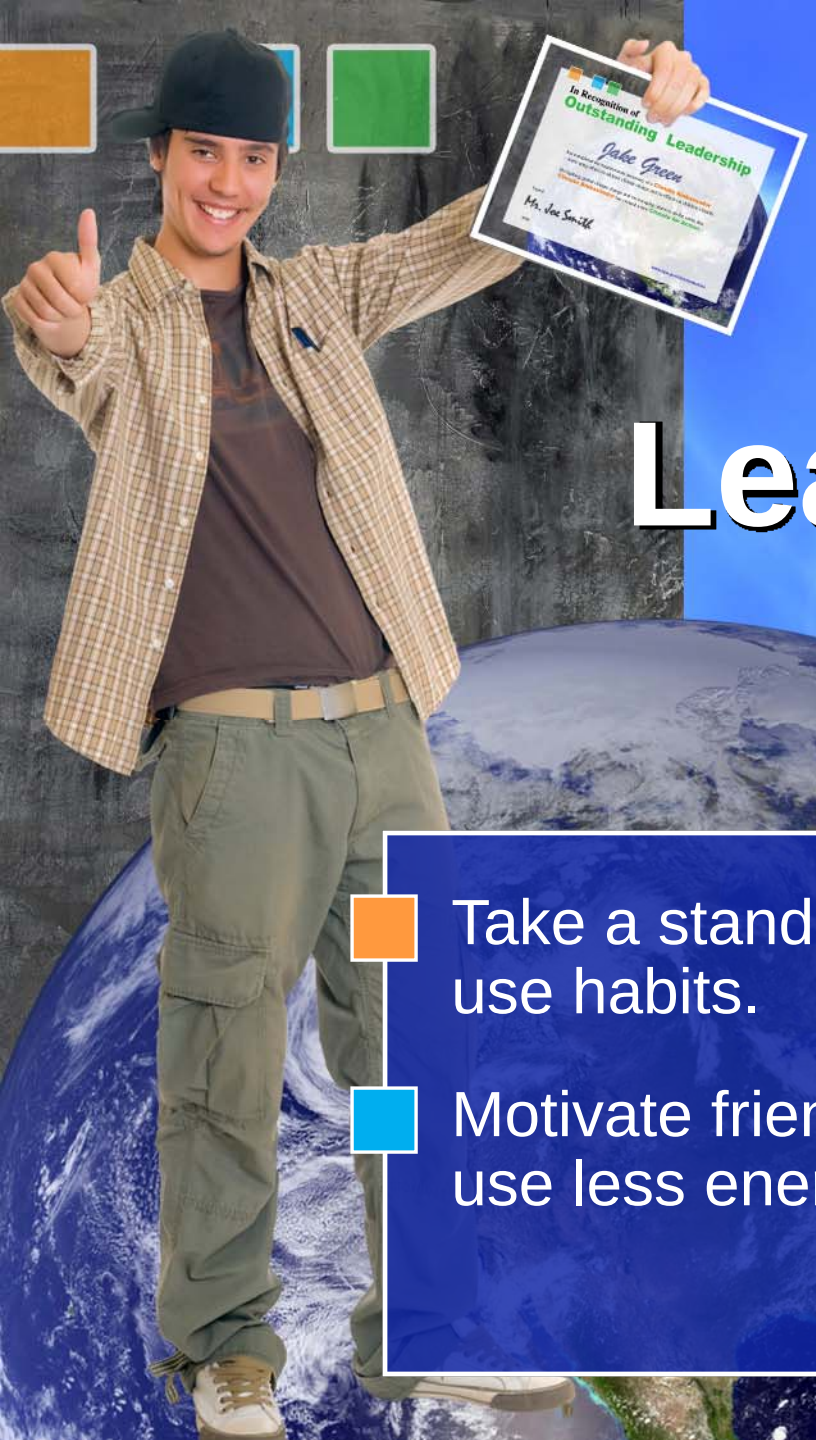
Greening Your Home: *Waste*

- Recycle magazines, food and beverage containers, and paper.
- Sell or donate old clothing and other items you no longer use.
- Shop for products that use less packaging so there's less waste.
- Bring your own shopping bags with you.

What *You* Can Do

Greening Your Community:

- If there's no recycling program in your community, help start one.
- Plant trees. They remove CO_2 from the air.
- Ask your town or city planner to consider Smart Growth practices.
- Encourage your town or city to get involved in ENERGY STAR® and other programs to save energy.



Last but not least...

Lead by example.

- Take a stand and change your own energy use habits.
- Motivate friends, family, teachers, and others to use less energy and reduce their carbon footprints.

With your help, we can reduce greenhouse gas emissions and make our environment safer and more livable for the future.

Learn More…

www.epa.gov/climatechange/students

www.epa.gov/climatechange

www.energystar.gov

www.epa.gov/smartgrowth