



EARTH HOUR
March 27, 2010
8:30 pm

Grades 6-8

Earth Hour Teacher's Guide

www.EarthHourKids.org



Title – Turn Out, Take Action and Help Slow Climate Change
Subtitle – What Is Climate Change and What Can Kids Do to Help?
Subject – Science and Literary Arts
Grade Level – 6-8

Objectives – To raise students' awareness of how our energy use and daily activities can affect the future of the planet and how they can slow climate change by conserving energy in their daily lives.

Materials – Earth Hour activity sheets and materials for posters and buttons. Computer lab or class computer.

Introduction – Climate change is perhaps the most significant issue facing our planet today. We are seeing that the planet is rapidly heating up. We are witnessing dramatic impacts, like melting sea ice in the Arctic, as a result of the amount of greenhouse gases we load into the Earth's atmosphere. The polar bears and the Arctic are at risk, as is life all around the planet, from tigers and coral reefs to plankton and people. To slow climate change we must act now.

Earth Hour Activity Sheet 1 – Earth Hour Around the Planet. What Is Earth Hour?

Read the above introduction, then have one student in the class read *What Is Earth Hour?* Have another read *Where Is Earth Hour?* If you have a class computer with Internet access you can show the Earth Hour video: www.myearthhour.org/earth-hour-video

Earth Hour Activity Sheet 2 – Homelink – What Are Climate Change and the Greenhouse Effect?

Use this as a homework sheet. Have your students read both paragraphs on this page. Ask them, *did you know that a large percentage of the electricity generated in the U.S.A. is from burning coal?* Coal is a fossil fuel; when you burn fossil fuels they release a gas called CO₂. Therefore, a good deal of electric power generation makes CO₂. Ask the students to look around their house and write ten things that burn fossil fuels in their lives. Go to our website www.EarthHourKids.org. Visit the Home page and read the *Meet the Climate Expert* slide show.

Class Challenge – Research online if your local power company offers different choices for electric power generation. Make a list of the options that your power company offers. Research the cost per kWh for each form of electric power generation. Discuss the benefits and obstacles of switching to clean green electricity.

Earth Hour Activity Sheet 3 – Who Studies Climate Change? A Climatologist.

Directions–Have the students read all paragraphs. Next, read the words beneath the word-find out loud to the students. Ask them if they can find and highlight each word at least once in the paragraphs. Last, have them find the words in the word-find. While they are doing the word-find ask them to describe the weather (yesterday and today) and the forecast for tomorrow. Ask them to describe the climate for different seasons where they live, and discuss what climate changes might occur in your region of the country. For example, in the Southwest there may be less rainfall. In the Northeast it may become colder in the winters with more snowfall. In Florida ocean levels will rise. What might the consequences be in regions around the country?

Earth Hour Activity Sheet 4 – What Is Your Impact? This energy calculator reinforces that conservation can have an impact on climate change and that as one person you can make a difference. Have the students read the questions and circle the number that describes their habits, then calculate the total at the bottom corner of the page. Students can also go to our website www.EarthHourKids.org. Visit the Play page and take the fun and quick quiz, *Earth Hour Power*.

Earth Hour Activity Sheet 5 – What Is Your Impact? Practice One Planet Living.

This page shows the students what their score means and gives them ways to reduce their footprint on our planet. Students can also go to our website www.EarthHourKids.org. Visit the Play page and play our *Break the Code* and *Memory* games.

Earth Hour Activity Sheet 6 – Can Climate Change Harm Wildlife?

Have the kids read the clues and fill in the crossword. Students can also go to our website www.EarthHourKids.org. Visit the Animals page and have students view the *Polar Bears* and *Amazing Animals* slide shows.

Earth Hour WebQuest – Activity Sheet 7 – How to...Start a Movement at Your School.

Go to the computer lab and open this page. Get into groups of two or more and click on the links below. As a group decide how these tools can be used to start a movement of change at your school. Discuss the following questions: What is Earth Hour? Why is it important? How can you participate? How will you use the tools offered to spread the word?

Earth Hour Classroom Activity Sheet 8 – Spread the Word – Earth Hour Activities for Kids.

Get into groups of two or more and think of five things you can do during Earth Hour. It is an excellent way to creatively work on brainstorming. Now that the students understand climate change and Earth Hour, discuss the talking points: What is Earth Hour? When is Earth Hour? Where do you participate in Earth Hour? Why participate? How can you participate? They can either download and print or make an Earth Hour poster, buttons or stickers, the week before Earth Hour they can give them out to their friends, family and classmates. To print our official stickers and posters go to: www.myearthhour.org/tools

Earth Hour Activity Sheet 9 – A Countdown to Earth Hour. Earth Hour Every Day. This calendar will remind them of some of the things they can do to reduce their footprint and ways to spread the word in the month of March.



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Earth Hour Around the Planet.

What Is Earth Hour?

Earth Hour Class Activity Sheet 1
www.EarthHourKids.org



What Is Earth Hour?

March 27, 2010, 8:30 p.m.

Millions of people around the world will come together to take a stand to protect our planet against climate change. They will do something quite simple – turn off their lights for just one hour and show that one person can make a difference and millions of people working together can change the world.



Where Is Earth Hour?



Worldwide. Earth Hour 2009 swept across the world. People all over the planet turned out their lights for just one hour. Lights went out in Sydney Opera House, Wat Arun Buddhist temple in Bangkok, the Coliseum in Rome, the Royal Castle in Stockholm, the Parliament building in Budapest, London's City Hall, the CN Tower in Toronto, the Sears Tower in Chicago and the Golden Gate Bridge in San Francisco. Join the world this year for Earth Hour 2010.

Earth Hour
Saturday
March 27, 2010
8:30 p.m.

Turn Out, Take Action
and show that you care about
the future of your planet.
It is as easy as
a flip of the
switch.

Last year
millions of people
around the world
participated.

This year, for just one hour, kids, families, schools, businesses and cities worldwide will come together again to turn out their lights and show it's possible to have an impact on climate change. Earth Hour is a time for kids to take action.

One Student Can Make a Difference

www.EarthHour.org



What Are Climate Change and the Greenhouse Effect?

Earth Hour Activity Sheet 2 - Homelink
www.EarthHourKids.org



What Is the Greenhouse Effect?

The Greenhouse Effect is named after a garden greenhouse, a glass house used to grow plants in the winter. As the sun's rays enter the greenhouse, the heat gets trapped and keeps the plants warm.

On Earth, the Greenhouse Effect works the same way. When the sun's rays shine down, some of the sun's energy escapes into space, and some of the sun's energy gets trapped and keeps the planet warm.

Do we have a glass dome around the planet? No. So what keeps the heat from escaping? Greenhouse gases do. Without these gases the planet would be very cold. Greenhouse gases act like a blanket and trap the sun's energy in our atmosphere.

Unfortunately, when we burn fossil fuels like coal, oil and gasoline we create man-made greenhouse gases. When we add too many of these gases to our atmosphere, more of the sun's energy is trapped, and the average temperature of our atmosphere goes up and our climate is disrupted. This affects all plants, animals and people and is called climate change.

Greenhouse gases trap heat within the surface and the troposphere. Greenhouse gases include water vapor, carbon dioxide and methane.

The USA produces more greenhouse gases per person than any other country in the world.

It's simple. When you burn fossil fuels you create man-made greenhouse gases.

Did you know that most electric power plants, cars, trucks and airplanes burn fossil fuels?

When burned, fossil fuels add CO₂ to the air.

If too much CO₂ is in the air it can cause the planet to heat up and the climate to change.

Directions: How is your electricity generated? Do you buy power generated from coal, natural gas, nuclear, or renewable energy such as wind, hydroelectric or solar?

Name 10 things you use that can cause greenhouse gases to be added to the atmosphere.



1. _____
2. _____
3. _____
4. _____
5. _____

6. _____
7. _____
8. _____
9. _____
10. _____



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Who Studies Climate Change?

Earth Hour Activity Sheet 3

www.EarthHourKids.org



A Climatologist.

Climatology is a scientific field of study. Scientists love to learn and always ask the questions what, why, when, where and how. Climatology is the scientific study of the Earth's climate over a period of time. Both climatology and meteorology are part of the atmospheric sciences. Meteorologists study the weather and climatologists study the climate.



Climatologists study the Earth's climate (land and sea) over a long period of time.



What Is Weather?

Weather is an atmospheric event at a particular time and place. The conditions include temperature, rain, snow, wind, humidity, wind speed and direction. It can be predicted by looking at air pressure, temperature and water vapor in the Earth's atmosphere.

What Is the Climate?

The climate is the average weather of a region and is affected by the latitude, terrain, altitude and nearby oceans and their currents. It is measured by temperature, humidity, rainfall and atmospheric particle count in a given area.

What Is Climate Change?

Climate change is the rapid changing of climates around the world and is the number one environmental issue of this century.

V I J T E N N J L T Z Q V E X M P A C T
 L X K J N H X E I H W T H P P O B Z Q H
 O M F M P Z M X X B K S Q S J F K Y I W
 Y R B O A V K C O P M B F D E B E N P P
 O P A D N L J Q F D G E F P V C Y B O W
 U B D E Q W G R S Y M W Q V D H H E J F
 H I X L R E S M W Y Y A R N J S T I U B
 M R D S E A L E V E L S G I T M R U C G
 V Q N V D T Y T Q Y B D L O R P E A P V
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 O J L A C T I O N R O C E A N E N S R E
 Y O F E E Q B L T K I X R P D C G P C R
 X Z C L O S N O W F A C S T L T S H A K
 D P T T Q U O G I M G S W O F L Z E K H
 N Z C K B R A I N Z R J K L W A W R C A
 N S S C A L I S D E I G U A D Z L E A I
 V Z C L I M A T O L O G I S T L L X T M
 Q O D G R I I O J S F Z Y Q R I D V X E

Directions:

First, read all the paragraphs.
 Next, find and highlight the words below at least once in the paragraphs.
 Last, find the words in the word-find.

Climatologist
Precipitation
Temperature
Ocean
Glaciers
Atmosphere

Meteorologist
Rain
Wind
Land
Ice Cores
Action

Snow
Weather
Sea Levels
Tree Rings
Protect

How Do They Study the Climate?

Climatologists are like detectives. They look at precipitation (rain or snow), temperatures (heat and cold) and wind all around the world. Climatologists examine what the climate was like in the past and predict how it will be in the future by observing:

- Ocean temperatures
- Land temperatures
 - Sea levels
 - Glaciers
 - Ice cores
 - Tree rings
 - Plants

What Have They Discovered?

Climatologists are seeing that the Earth's climate is changing rapidly. Glaciers and sea ice are melting. Temperatures and sea levels are rising. Winter and summer storms are becoming more frequent and stronger. Drought is causing more fires and smaller harvests.



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What Is Your Footprint?

What Is Your Impact?

Earth Hour Activity Sheet 4

www.EarthHourKids.org



Calculate Your Energy Footprint.

Circle the number that best describes your habits.

Start

1. How Much Meat and Fish Do You Eat?

- ◇ Never. 1
- ◇ One to three times a week. 2
- ◇ Four to five times a week. 3
- ◇ Every day. 4

2. What Fruits and Veggies Do You Eat?

- ◇ Only local fruits and veggies. 1
- ◇ Fresh produce, frozen and canned food. 2
- ◇ Frozen, canned, imported produce. 3
- ◇ Processed, frozen, canned, imported produce and you eat at restaurants a lot. 4

3. Where Do You Live?

- ◇ Studio apartment. 1
- ◇ Medium apartment or small house (2 Bedrooms). 2
- ◇ Large apartment or Medium House (3 Bedrooms). 3
- ◇ Large House (4-5+ Bedrooms). 4

4. How Do You Heat Your Home?

- ◇ Renewable Energy (solar, wind etc.). 1
- ◇ Gas. 2
- ◇ Oil. 3
- ◇ Electricity. 4

5. How Do You Live?

- ◇ You heat your house with renewable energy (solar, wind, etc.). 1
- ◇ You keep your heat low and wear a sweater. 2
- ◇ You only turn heat down when you are not home. 3
- ◇ Your heat is on above 70° all the time. 4

6. How Do You Use Energy?

- ◇ You use renewable energy (solar, wind, etc.). 1
- ◇ You avoid wasting energy (turn off lights, take short showers, etc.). 2
- ◇ You leave on lights, TVs, computers, etc. 3
- ◇ Plus you also use electric heaters and hair dryers. 4

7. What Paper Do You Use?

- ◇ Recycled paper, no junk mail or periodicals. 1
- ◇ Recycled paper, some junk mail, one periodical. 2
- ◇ Regular paper, lots of junk mail and periodicals. 3
- ◇ Regular paper, lots of junk mail and periodicals and you Xerox and print a lot. 4

8. How Often Do You Use A Car?

- ◇ Never. 1
- ◇ Occasionally. 2
- ◇ Every day. 3
- ◇ Every day for long-distance driving. 4

9. Do You Use Public Transportation (Including School Bus)?

- ◇ Every day for all transportation. 1
- ◇ Every day to go to school. 2
- ◇ Occasionally. 3
- ◇ Never. 4

10. Where Do You Vacation?

- ◇ We stay at home. 1
- ◇ We go somewhere local, by car. 2
- ◇ We fly 2-3 hours away. 3
- ◇ We fly to an exotic location 5 or more hours away. 4

Add up your score. What is your impact?

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____



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What Is Your Footprint? Practice One Planet Living.

Earth Hour Activity Sheet 5

www.EarthHourKids.org



Did You Do Well? Or Do You Need to Work Harder?

10-20: Good Job.

You are a conservationist. You are well on your way to helping the planet and to slowing climate change.

20-30: Not Bad.

Now it is time to improve. We would need 2-3 more planets if everyone in the world consumed this much energy.

30-40: It's Time For Change.

The great news is there is room for improvement. We would need 3-4 planets if everyone in the world used this much energy.

When you buy a car choose a hybrid or fuel efficient model.

Take a shorter shower. Use a timer.

Turn off lights, TV and computer when you leave a room.

Wash laundry in cold water. Air dry clothes if possible.

Only run the dishwasher when it is full.

Change lights to compact fluorescent light bulbs.

Twice or more a week enjoy a vegetarian meal.

Save and plant trees. Reduce, reuse and recycle paper.

Ride school bus or public transportation whenever possible.

Use a fan on warm days and use less AC.

Reduce the use of air conditioning and heat in your car.

Ask your power company if they offer clean energy.

Remove your name from catalog and junk mailers.

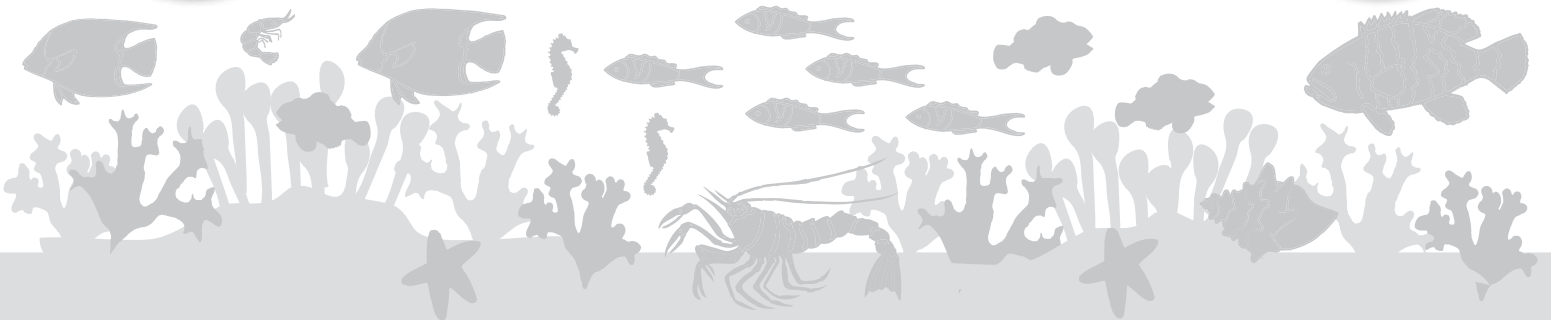
Carpool whenever possible.

Drive the speed limit - turn off the engine when you are parked.

We Only Have One Planet. Live a One Planet Lifestyle.

Make a pledge to reduce your energy footprint. What are you willing to do? Circle each after reading.

Vacation closer to home. Limit flying.





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Can Climate Change Harm Wildlife?

Earth Hour Activity Sheet 6
www.EarthHourKids.org



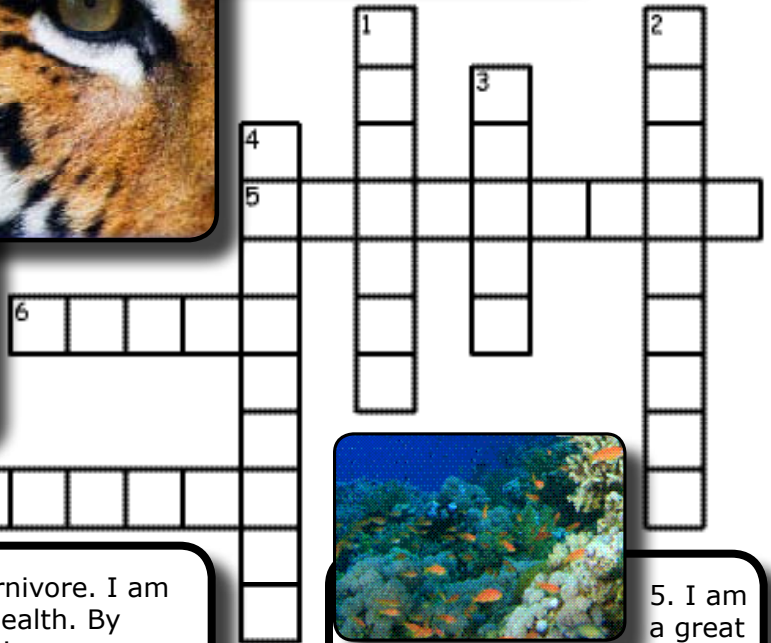
Yes. On this page are some of the many animals that have been or will be harmed by climate change. How does climate change harm these animals? Read the clues and fill in the crossword.

2. I am a beautiful marine animal and I live in a colony called a _____ . I have an external skeleton. I am an animal, but I look like a stone. Thousands of animals in the ocean live around me. The oceans are warming and becoming too acidic, and I am dying.

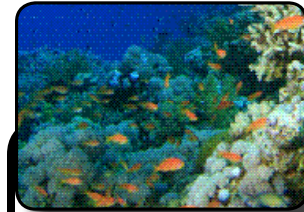
1. I am a _____ butterfly. I migrate south up to 2000 miles and winter in the mountains in Mexico. The weather is changing in the Mexican mountains and becoming too cold and wet for me to survive.



3 I am a big cat. The oceans are rising and I am losing habitat because of floods. I am an important part of the food web. As a top predator, I keep populations of wild ungulates (hoofed herbivores) in check. Too many herbivores could mean added harm to crops and vegetation.



4. I am a bear and a large carnivore. I am sensitive to my ecosystem's health. By studying me, the scientists gain understanding of what is happening throughout the Arctic. They have discovered that Arctic sea ice is shrinking and so are my hunting grounds. This will impact all life in the Arctic including humans.



5. I am a great ape. I

6. I am a bear and I live in a small habitat in the mountains of China. I eat bamboo for 12 hours a day. Some species of bamboo will stop growing as the climate changes and I will find it hard to find food.



live in the rainforests of Indonesia. As the climate warms and becomes drier, more and more fires threaten my habitat. The rainforests of Indonesia are important not only to me and all other fauna and flora, but to the fight against climate change. When the rainforest burns, we not only lose the trees that absorb CO₂, but the burning trees release more CO₂ into the atmosphere.



7. I am a swimming reptile. My nests on sandy beaches are getting too warm, so fewer males of my species are hatching. Fewer males could mean the end of my species. Rising sea levels are putting my nesting grounds at risk.

1. Monarch 2. Coral Reef 3. Tiger
 4. Polar Bear 5. Orangutan
 6. Panda 7. Sea Turtle



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How To... Start a Movement at Your School

Earth Hour WebQuest - Activity Sheet 7
www.EarthHourKids.org



Let Your Voice Be Heard

Earth Hour is all about participation. You have the power to make your voice be heard. Demand action on climate change. This is your planet and this is your future. Tell local, national and international leaders why it is important to fight climate change.

Directions: Get into groups of two or more. As a group decide how the tools below can be used to start a movement of change at your school. Discuss the following question: What is Earth Hour? Why is it important? How can you participate? How will you use the tools offered to spread the word?



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Student Kits

Use our student kits, downloadable poster, stickers and more to spread the word.

www.myeearthhour.org/tools

Become
 Part of the
 Global Movement.
 It's As Simple As
 a Flip of the
 Switch.

YouTube

Check our Earth Hour video. It can be used in so many ways. Spread the word and inspire those around you to participate and take a stand against climate change.

www.myeearthhour.org/earth-hour-video

You can share this video on social networking sites and at clubs - anywhere that you have Internet access.

Web Sites

Check out Earth Hour's pages on:

Facebook

www.facebook.com/worldwildlifefund

Twitter

www.twitter.com/earthhourUS

Flickr

www.flickr.com/groups/earthhour/

World Wildlife Fund

www.worldwildlife.org/climate/index.html

E-mail

A Letter to the Editor.

Make a list of the newspapers, TV and radio stations in your town or city. Go online to each of their websites. At the bottom of their home page in small letters you will find a link to *Contact Us*.

Send a letter or e-mail explaining the what, where, when and why of Earth Hour. Tell them how you will participate and urge them to join.

Community Service Hours

WWF is a non-profit, secular organization. By developing a plan to spread the word about climate change you can fulfill your community service hours.



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**Spread the Word.
Let Your Voice Be Heard.**
Earth Hour Activity Sheet 8
www.EarthHourKids.org



Buttons

or Stickers.

On March 26, the Friday before Earth Hour, design and give out stickers or buttons at school.

Don't forget to include the event, date and time:



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or download official Earth Hour stickers:

www.myearthhour.org/tools

Posters.

Posters are a terrific way to spread the word. Put them up in the hallways at school the week before Earth Hour.



On your poster include:

What is Earth Hour?

When is Earth Hour?

Why participate?

Where can you participate?

How can you participate?

Or download the official

Earth Hour poster:

www.myearthhour.org/tools

Earth Hour, Make It a Night to Remember.

Grab a hand-charged or solar flashlight:

- Do you belong to a club at school? Organize your club members and host an event.
- Lead a 1K walkathon parade with flashlights.
- Host a flashlight board game party or a neighborhood game of flashlight tag.

Go to our website for more fun ideas:

www.EarthHour.org

Write five ideas of your own to make Earth Hour a night to remember.

1. _____
2. _____
3. _____
4. _____
5. _____

Tell Your Friends.

There is no better way to spread the word. Invite your family, friends, neighbors, and entire community to turn off their lights for Earth Hour, and in the process become more informed about climate change. Help make Earth Hour the largest climate event in history.



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A Countdown to Earth Hour. Earth Hour Every Day.

Earth Hour Activity Sheet 9



March 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28 27 days until Earth Hour	1 Plan how you will participate in Earth Hour	2 Check out Earth Hour on Flickr.com	3 Ride public transportation	4 Take a shorter shower	5 Carpool with friends	6 21 days until Earth Hour
7 20 days until Earth Hour	8 Unplug what isn't being used	9 E-mail the media about your Earth Hour plans	10 Eat only veggies today	11 Ask parents to drive the speed limit and inflate tires	12 Turn off lights and TV when you leave a room	13 14 days until Earth Hour
14 13 days until Earth Hour	15 Replace light bulbs with CFLs	16 Does your power company offer clean energy?	17 Show Earth Hour YouTube page to friends	18 Use a manual push mower to cut grass	19 Hang Earth Hour posters	20 7 days until Earth Hour
21 6 days until Earth Hour	22 Reduce Reuse Recycle	23 Tell five friends about Earth Hour	24 Use reusable water bottles and bags	25 Set up an Earth Hour info table outside cafeteria	26 Give out Earth Hour stickers or buttons	27 EARTH HOUR 8:30 p.m.
28 Upload your Earth Hour photos to flickr	29 Research clean green energy	30 Pledge to practice conserving every day	30 Pledge to practice conserving every day			

One student can make a difference.

Use this calendar to plan how you will spread the word about Earth Hour to friends, family, your school and your city or town. Practice Earth Hour every day and help to slow climate change. Visit our sites: www.EarthHourKids.org and www.EarthHour.org.