

Gikinoo'wizhiwe Onji Waaban  
"Guiding for Tomorrow"  
or "G-WOW"

Changing Climate, Changing Culture Initiative

Presentation for the  
2013 Wisconsin Lakes Conference

G'WOW Project Team:

Sue Erickson and Jim St. Arnold-GLIFWC,

Jason Maloney- US Forest Service, Cathy Techtmann- UW-Extension

# G-WOW Project Partners



## Primary Funding Provided by:



With additional funding from UW-Extension,  
the National Park Service and the US Forest Service

# Additional technical support and resources



“...local, place-based evidence of climate change gained through experiential learning is as, or more effective than, simply studying analytical climate change data to increasing climate change literacy.”

*“The Psychology of Climate Change Communication”,  
Columbia University 2009.*



# Project Roots

- Increasing evidence that climate change is affecting the sustainability of Lake Superior coastal resources, communities, and cultures.
- Creating a new climate literacy model that integrates place-based Ojibwe traditional ecological knowledge (TEK) with the latest climate science.
- Opportunity for a new multi-cultural collaboration between project partners to increase climate awareness for people of all cultures.



*The NGLVC is located in Ashland, WI*



# What is the G-WOW Initiative?

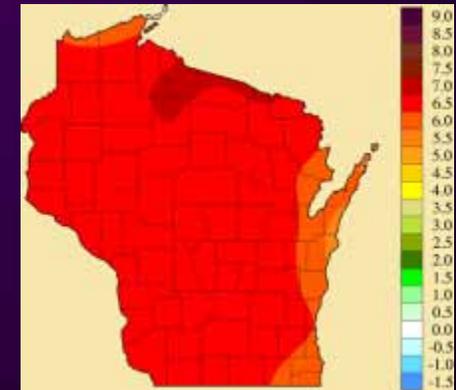
Increasing awareness of climate change impacts on the sustainability of Lake Superior's coastal resources, cultures, and communities by integrating:

- **Place-based evidence of climate change based on its impact on traditional Lake Superior Ojibwe lifeways.**
- **Climate change scientific research.**
- **Action to address climate change at a community level.**

Encouraging people to reflect on how climate change impacts their culture and community; and guiding action to address it.

# Key principles

- Climate change is real.
- Humans contribute to climate change.
- Weather and climate are different.
- Climate affects culture.
- We can make a difference.



*Projected change in Wisconsin's annual average temperatures in degrees F, 1980-2055, Wisconsin Initiative on Climate Change Impacts (WICCI)*

The G-WOW model is based on understanding how climate change affects the sustainability of a key plant or animal species that an Ojibwe culture practice or “lifeway” depends on.



- Links place-based evidence with scientific climate change research
- Makes the model transferrable across different cultures



The Ojibwe lifeway of wild rice harvesting depends on the sustainability of manoomin.

# G'WOW Model for Increasing Climate Change Literacy

Sharing Results  
Interactive Blog



Taking Action on Knowledge  
Community level service learning  
projects

## Lifeways-Place Based

- Birch bark harvesting & Maple sugaring
- Fishing
- Wild Ricing
- Respecting Our Culture

## Climate Change Science

- Federal
- State
- Tribes

# Target Audiences



**Middle school and above level learners including:**

## **Students**

Independent online learning via the G-WOW web curriculum  
Teacher guided classroom learning  
Learning via school programs/field experiences at the NGLVC

## **Teachers-Educators**

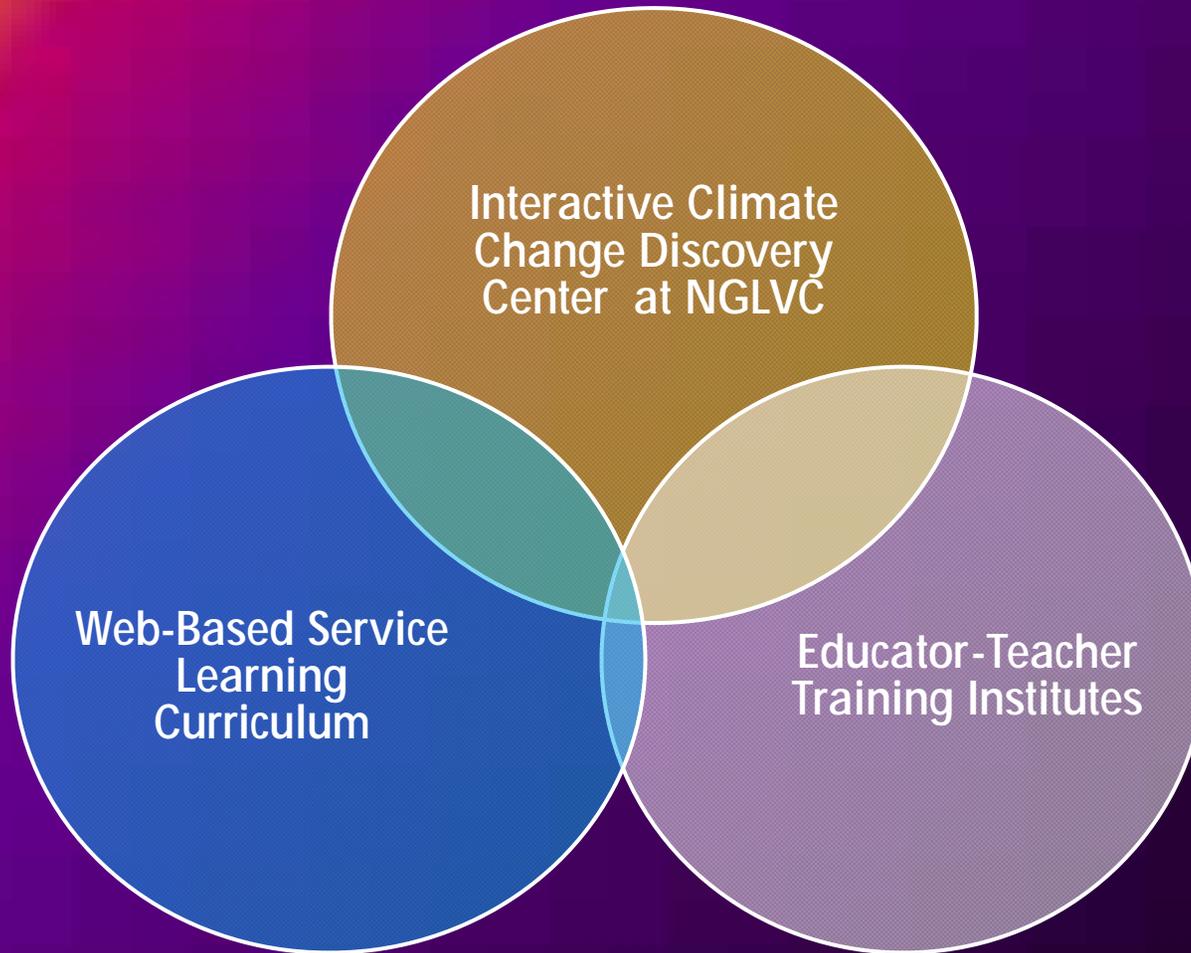
Interested in increasing their climate change literacy to support classroom and community climate change education

Teacher G-WOW Changing Climate, Changing Culture Institutes

## **Visitors to the NGLVC**

Approximately 150,000 annual visitors  
Includes school classes, community members, transient visitors

# G-WOW outreach components



Experiential learning experiences for students & educators

Ojibwe language and traditional ecological knowledge

Multi-cultural perspectives



## G-WOW Changing Climate, Changing Culture Discovery Center

Northern Great Lakes Visitor Center, Ashland WI

- Major exhibit featuring place-based evidence of climate change impacts on the sustainability of manoomin and Ojibwe lifeway of wild ricing.
- Integrates Ojibwe language, TEK, multi-cultural perspectives.
- Applies climate research and climate change observations from other cultures.
- Gives local examples of local climate change mitigation activities.

# Exhibit Panel 1: Food that Grows on the Water Lifeways Threatened



Provides background on Ojibwe lifeway of wild ricing and the ecology and cultural importance of the key species, manoomin or "wild rice."





# Exhibit Panel 3: The Great Lakes Are Running A Fever



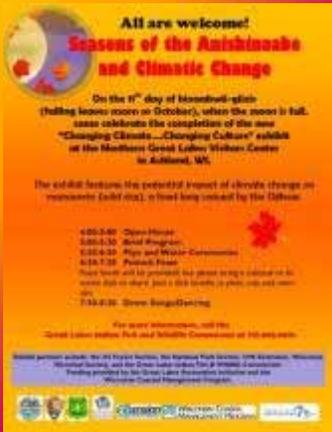
Integrates scientific evidence of climate change, future climate projections, and multi-cultural observations.

# Exhibit Panel 4: Fighting Climate Change with Change



Offers Ojibwe "Seven Generation" teaching and stories of what local people are doing to fight climate change.





# G'WOW Discovery Center Dedication Ceremony

Dedicated 10/11/11 with ceremonies, feast, and attended by over 120 tribal, state/federal agency, and community representatives.



*Bad River Tribal Elder Joe Rose speaking at G'WOW dedication*

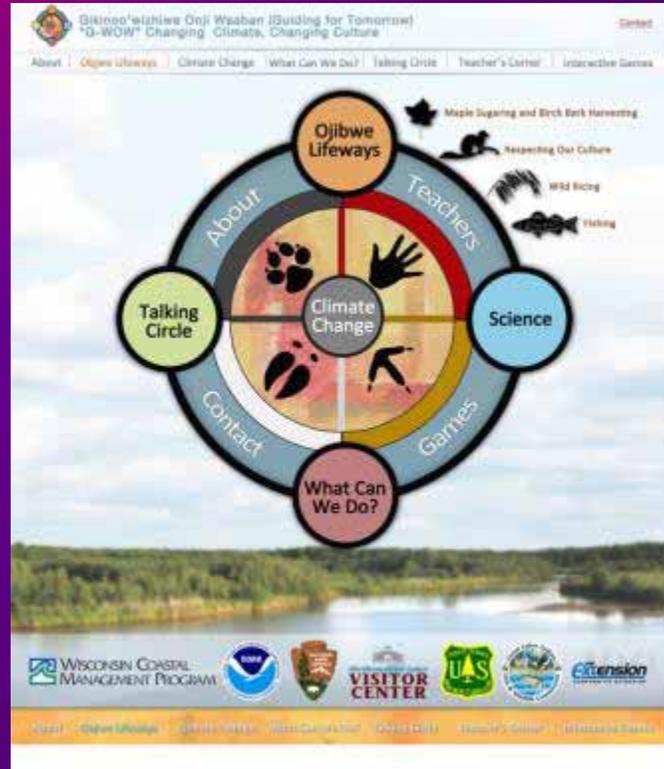


*Bad River Tribal Chairman Mike Wiggins and Nicolet-Chequamegon National Forest Supervisor Paul Strong*



*A traditional feast and dancing followed*

*Photos: Charlie Rasmussen- GUFWC*



G-WOW Website

[www.g-wow.org](http://www.g-wow.org)

Major new on-line climate change service learning curriculum

# G'WOW web-based curriculum



- Expanded to include 4 seasonal Ojibwe cultural lifeways to investigate place-based evidence of climate change impacts on each using videos, web-resources, and experiential learning .
- Interactive maps and links to scientific research to investigate climate change impacts on the sustainability of the key species.
- Students develop a climate change hypothesis and test it.
- Completion of a service learning project to address climate change.
- Sharing project results with others via an interactive blog.

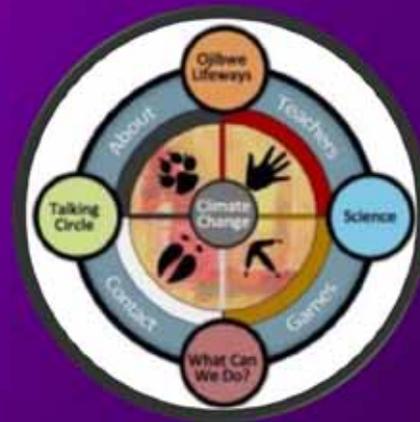
## Ojibwe Lifeway Units



Maple Sugaring & Birchbark Harvesting- Sugar Maple & Paper Birch (Spring)  
Fishing- Cold and Coolwater Fish (Summer)  
Wild Ricing-Manoomin (Fall)  
Respecting Our Culture-American Marten (Winter)

- Learning objectives for the unit.
- Baseline ecological information on the key species(s) the lifeway depends on.
- Connects the learner with culture, understanding of the importance of key species to maintaining the Ojibwe lifeway.
- Place-based evidence exploring how climate change impacts the key species, the Ojibwe lifeway, and what these change mean for people of all cultures.
- Activity Guides guide student investigations.

## Investigate the Science

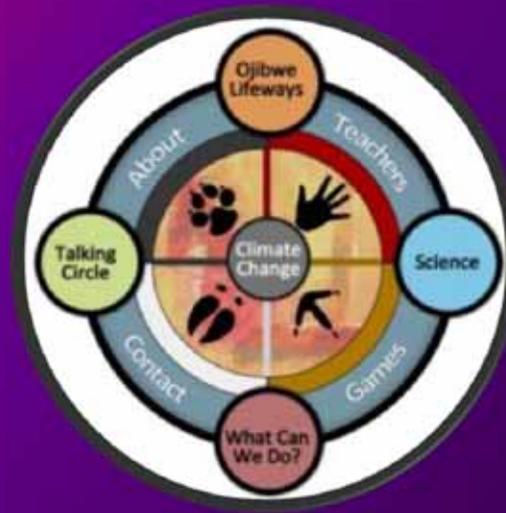


- Toolbox of options to investigate scientific climate change research, focusing on climate change stressors affecting the key species.
- “Test It” : Learners develop their own hypothesis on climate change and test it through a self-designed investigations.
- Activity Guides guide student investigations.



Projected change in the frequency of 2" precipitation events from 1980-2055, WICCI

## What Can We Do?



- Provides a template for developing a service learning project.
- Learners act on knowledge gained to develop a service learning project to address climate change impacts.

## Talking Circle



- Learners reflect on knowledge gained and share results of their service learning project through the “Talking Circle” blog.
- Talking Circle projects are automatically uploaded to the G-WOW kiosk.

# Other G-WOW Website Resources

## About

Project background  
Partner acknowledgements



## Teacher Resources

G'WOW Curriculum Guide

## Climate Change

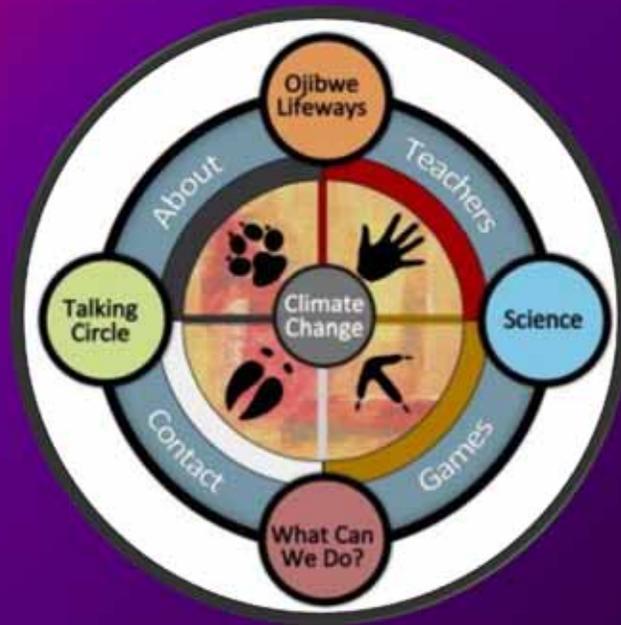
Climate literacy basics

## Contact

For more information

## Games

Interactive climate  
change games



Take a Test Drive



# Teacher-Educator Professional Development



**2012 "G-WOW Changing Climate, Changing Culture" 4-day Institute.**  
In-depth climate change core competency and G-WOW model training.  
Offered by UW-Extension, AINL-NPS, GLIFWC, USFS, NGLVC.  
Location: Apostle Island National Lakeshore, Bad River, and NGLVC.

- 25 teacher participants.
- 900 training hours. Credit available.
- 83% of the educators who attended the used the knowledge gained to engage their classes in climate mitigation projects.
- 400 students participated in climate change service learning projects.

**2013 G-WOW Changing Climate, Changing Culture Teacher Institute, July 15-18.**  
**SAVE THE DATES!**

"When I saw that we would be teaching about climate change this fall,  
I thought Ugghhh!!!

Now I see that the cultural impact of climate change is how to approach  
middle school kids with this topic. I am anxious to bring kids up from central  
Wisconsin to see how climate change is impacting this region."

*- a teacher from Marathon, WI*

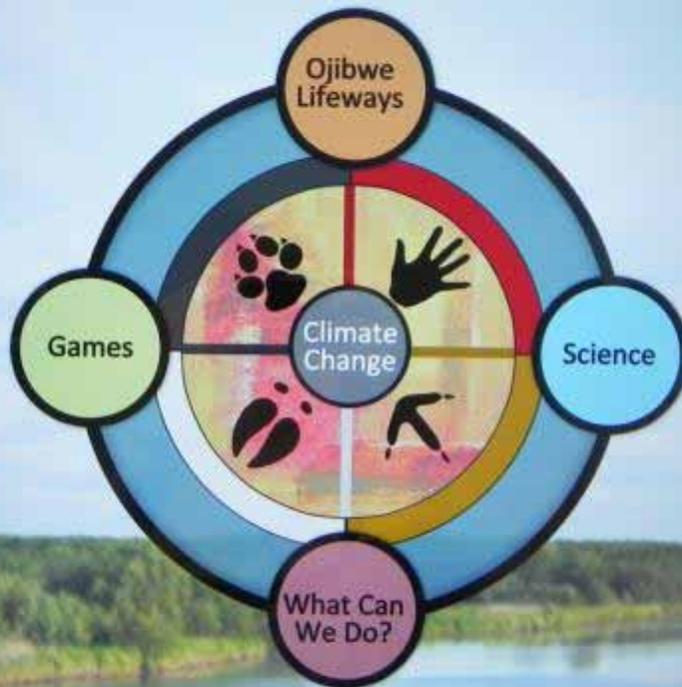
# G'WOW Discovery Center Interactive Kiosk



- **32-inch interactive touch screen kiosk**
- **Installed at the NGLVC: 3/31/13**



Gikinhoo'wizhiwe Onji Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture



Tap Here for Help

About



The kiosk features the **G-WOW** curriculum in a condensed, interactive format.

 **G-WOW** *Guiding for Tomorrow*  
G-WOW: Changing Climate, Changing Culture

[Main Screen](#)

### Ojibwe Lifeway: Maple Sugaring and Birch Bark Harvesting ("Ziigwan"- Spring)

#### BACKGROUND

Each spring the Lake Superior Ojibwe make maple syrup and harvest birch bark.

These cultural practices rely on the sustainability of sugar maple ("anisantag" in the Ojibwe language) and paper birch ("wigwaas") trees.

A warming climate will alter Wisconsin's forests and the trees growing there. It means changes for northern Wisconsin's most important economic sectors: logging, tourism, and agriculture.

These changes will also affect wildlife species that rely on forest habitats.

How would climate trends affect the sustainability of sugar maple and paper birch trees, and Ojibwe cultural practices that rely on them? What do these trends indicate for the cultural traditions and activities you enjoy?

Do culture and science agree? You be the judge.

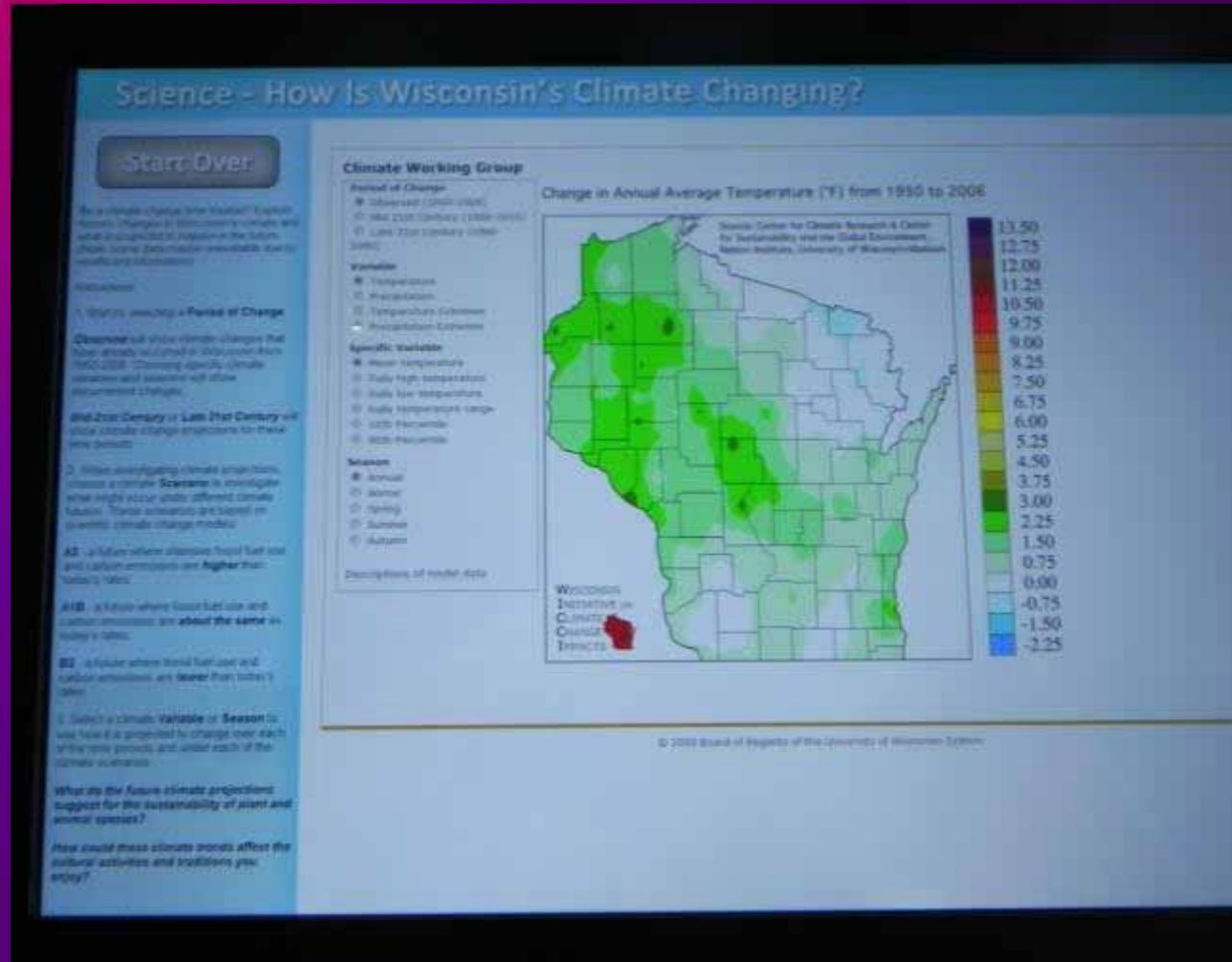
#### CONNECT WITH CULTURE

  
Trees of Life

#### INVESTIGATE THE SCIENCE

  
Temperature

Science



The Science icon opens an interactive map where time periods, environmental variables and climate futures can be manipulated to investigate projected climate change impacts.



The "What Can We Do" icon provides practical tips for fighting climate change and gives examples of community climate change projects posted to the G-WOW website.

 **Siik'oo'wizhiwa Ojii Waaban (Guiding for Tomorrow)**  
"G-WOW" Changing Climate, Changing Culture

[Main Screen](#)

## What Can We Do?

### FIGHT CLIMATE CHANGE WITH CHANGE

Fighting climate change with change doesn't cost. It pays—in savings to you and savings in the amount of greenhouse gases emitted into the atmosphere. By reducing greenhouse gas emissions, we reduce the impacts of climate change.

Here are some easy, practical ways to fight climate change at home, in school, or at work:

**Change lights**  
Replace the light bulbs you use the most with ENERGY STAR qualified light fixtures or bulbs. You will reduce carbon emissions while saving \$70 a year on energy bills. ENERGY STAR lighting uses about 75% less energy than standard lighting and lasts from 10 to 50 times longer.

**Choose ENERGY STAR products**  
When buying new products and appliances, choose the ENERGY STAR label to help you make the most energy-efficient decision which will save money.

**Just Unplug**  
Did you know that the total electricity consumed by idle electronics equals the annual output of 12 power plants?

- Set your computer, monitor and other electronics equipment to power down when not in use.
- Unplug re-charging power cords and power strips when not in use. These electronic vampires suck power if not unplugged.
- Turn off electronic equipment and lights at the end of the day.
- Plug everything into a power strip. It's easier to shut everything down at one time.

**Keep Your Cool (or heat, for that matter!)**  
Heating and cooling accounts for almost half our energy bills—about \$1,000 a year! Here's how to drop those costs, and fight climate change.





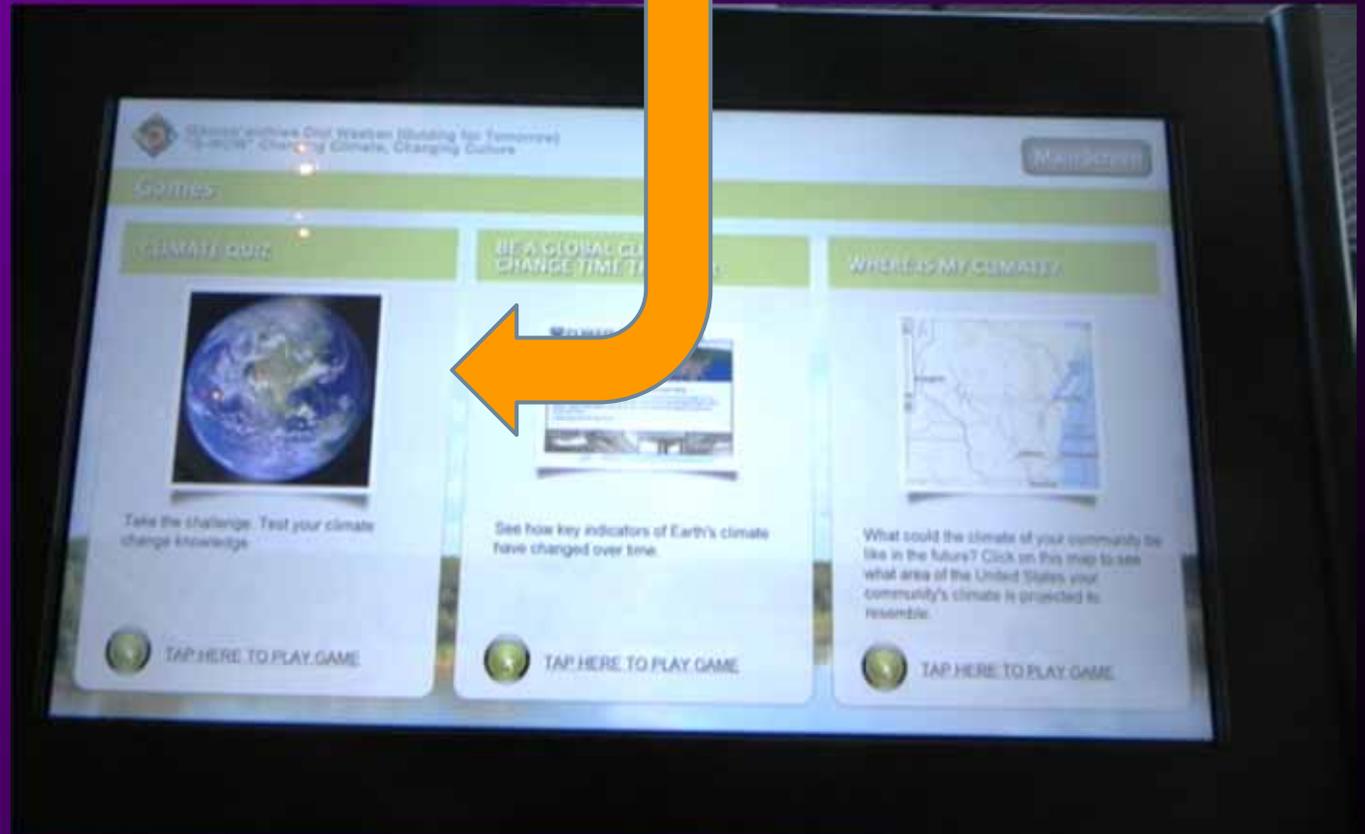
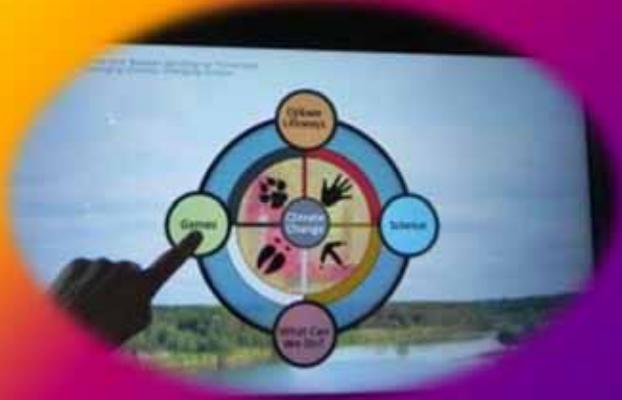
### MAKE A DIFFERENCE

-  [Cool Schools](#)
-  [Climate Change @ Home](#)
-  [Get Wild About Climate Change](#)
-  [Save Your Energy](#)
-  [Our Climate, Our Cultures](#)



The kiosk includes videos, many interactive tools, and **games!**

Let's Play  
"CLIMATE QUIZ"





Gikind'wikh'we Onj' Weaben (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

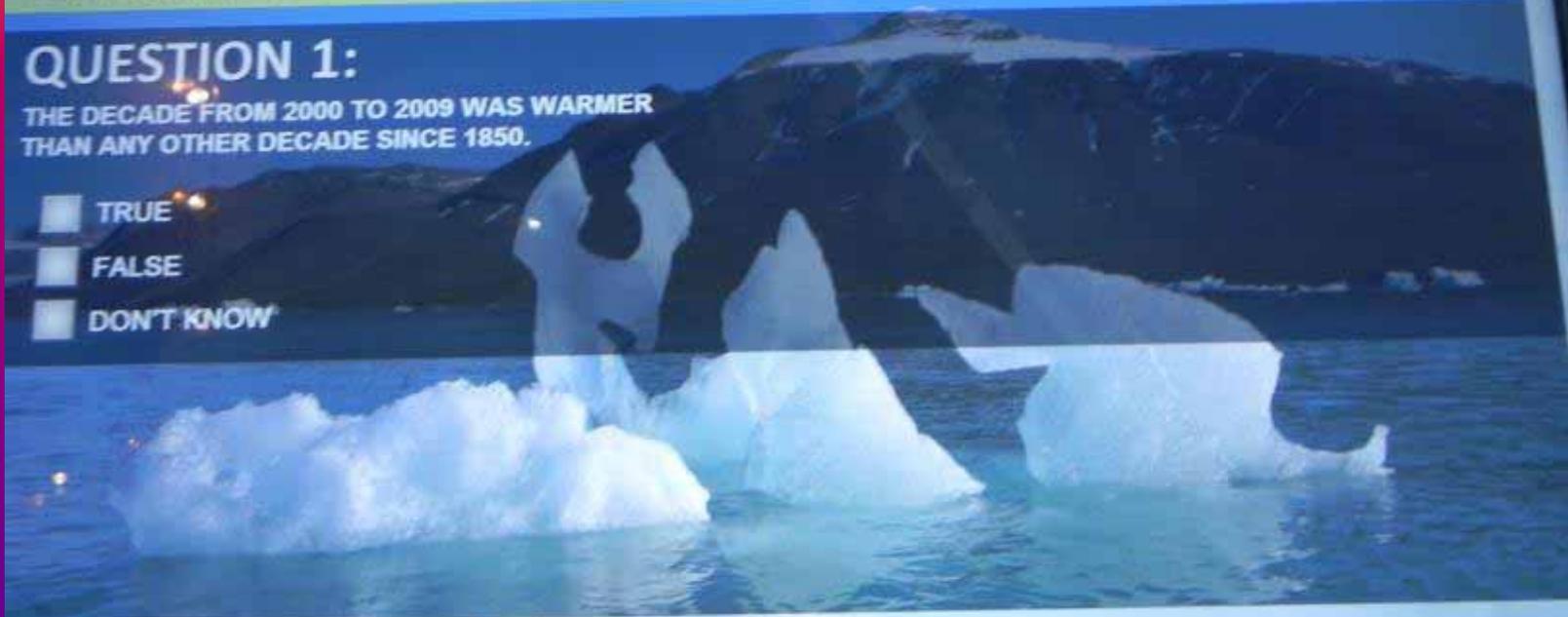
Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

## QUESTION 1:

THE DECADE FROM 2000 TO 2009 WAS WARMER  
THAN ANY OTHER DECADE SINCE 1850.

- TRUE
- FALSE
- DON'T KNOW





Okimoo'wizhiwe Onj- Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE



## QUESTION 1:

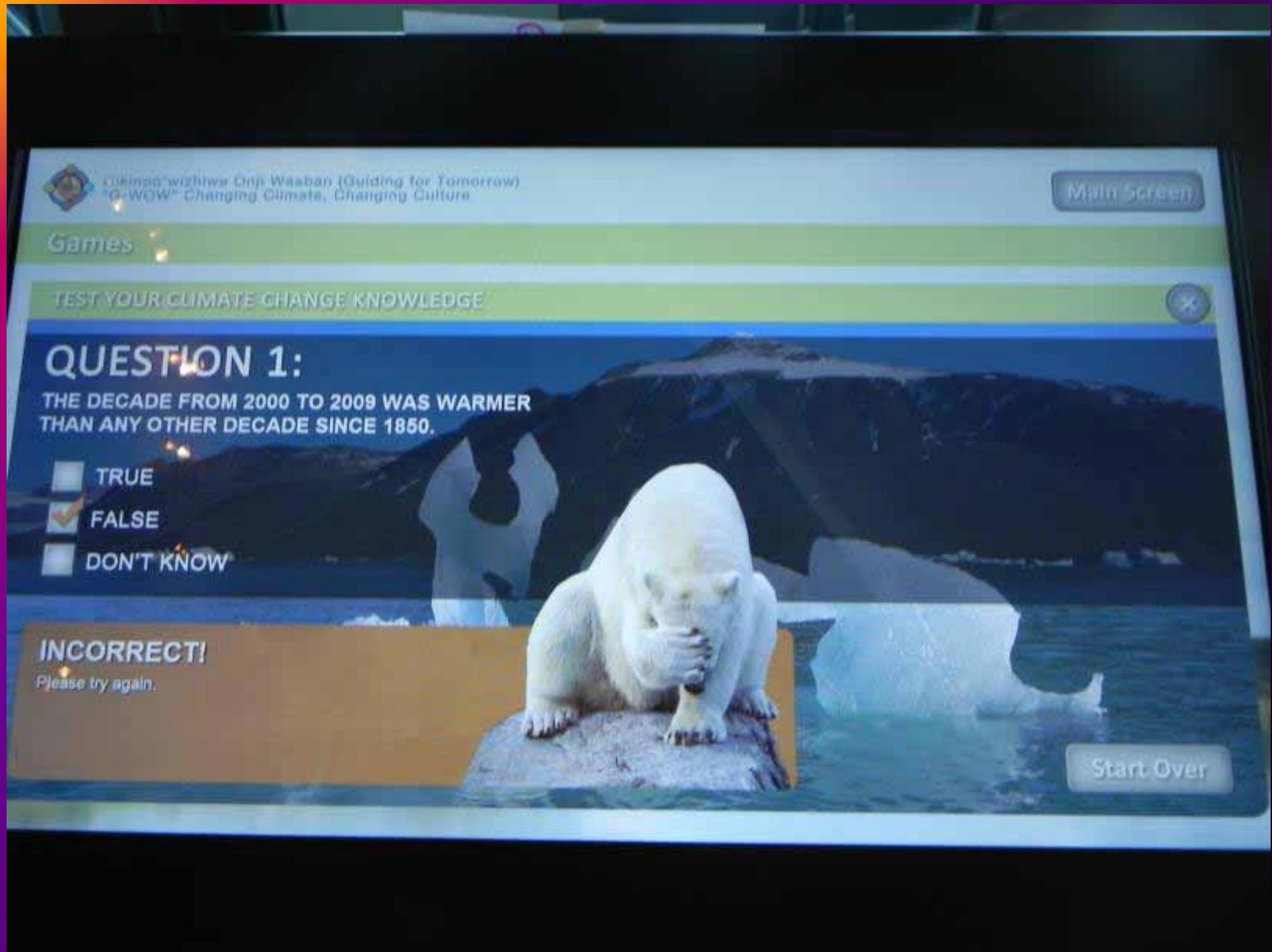
THE DECADE FROM 2000 TO 2009 WAS WARMER  
THAN ANY OTHER DECADE SINCE 1850.

- TRUE
- FALSE
- DON'T KNOW

**INCORRECT!**

Please try again.

Start Over





Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

QUESTION 1:

THE DECADE FROM 2000 TO 2009 WAS WARMER THAN ANY OTHER DECADE SINCE 1850.

- TRUE
- FALSE
- DON'T KNOW

Next Question >

CORRECT!

The World Meteorological Organization documented that 2000-2009 was the warmest decade since records were kept. According to NASA, the global average surface temperature in 2011 was the ninth warmest since 1880. This continues a trend in which 9 of the 10 warmest years in the modern meteorological record have occurred since the year 2000.



Start Over



Gikinon'wizhiwa Orji Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE



## QUESTION 2:

THE EARTH'S CLIMATE HAS CHANGED NATURALLY  
IN THE PAST; THEREFORE HUMANS ARE NOT THE  
CAUSE OF GLOBAL WARMING.

- TRUE
- FALSE
- DON'T KNOW

Start Over



Winkoo'wishiwe Onji Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

## QUESTION 2:

THE EARTH'S CLIMATE HAS CHANGED NATURALLY  
IN THE PAST; THEREFORE HUMANS ARE NOT THE  
CAUSE OF GLOBAL WARMING.

- TRUE
- FALSE
- DON'T KNOW

**INCORRECT!**

Please try again.



Start Over



Games

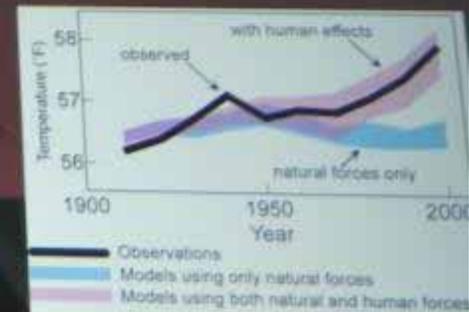
TEST YOUR CLIMATE CHANGE KNOWLEDGE

QUESTION 2:

THE EARTH'S CLIMATE HAS CHANGED NATURALLY  
IN THE PAST; THEREFORE HUMANS ARE NOT THE  
CAUSE OF GLOBAL WARMING.

- TRUE
- FALSE
- DON'T KNOW

Next Question >



THE CORRECT ANSWER IS... **FALSE**

Climate models that account only for the effects of natural earth forces cannot explain global warming that happened over the past century. Something more is going on. When the effect of the greenhouse gases emitted by human activities is added into these models, they are able to explain this warming.

Start Over



Gikinoo'wizhiwe Onji Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

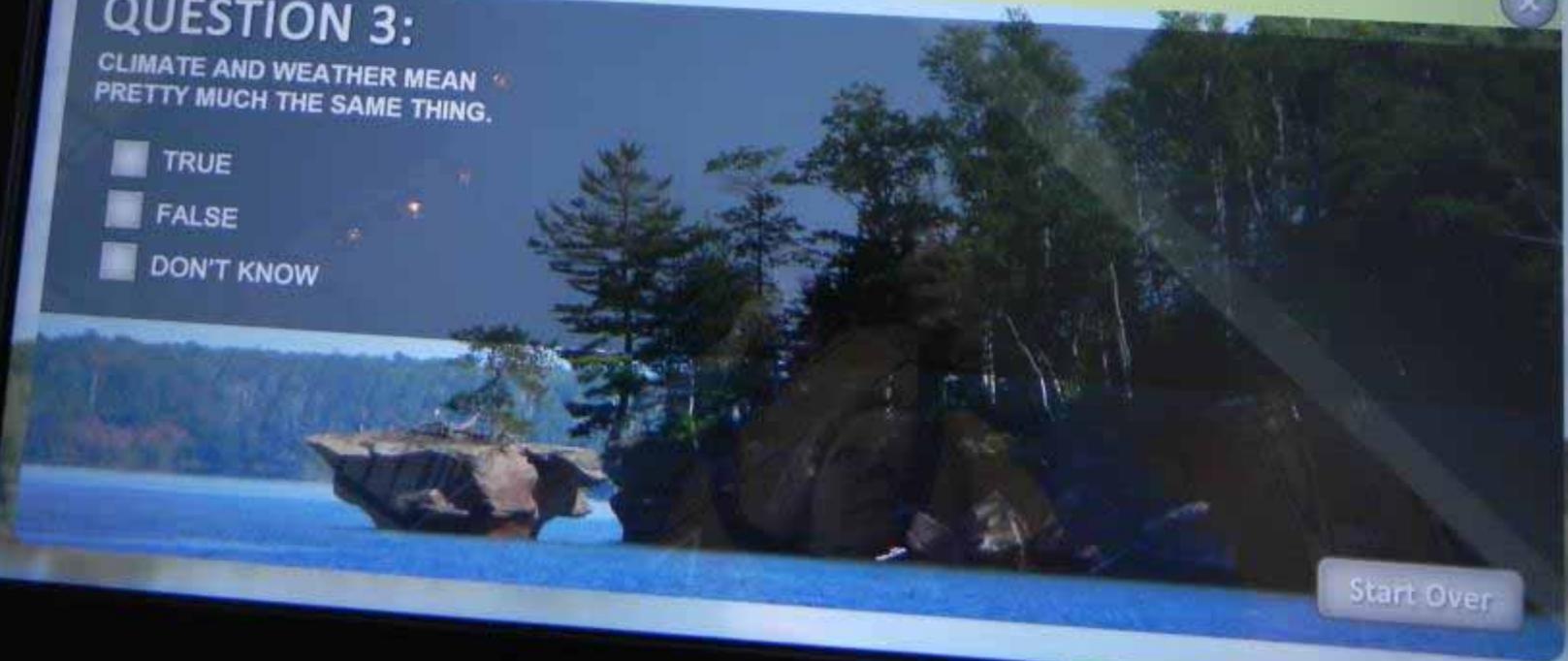
### QUESTION 3:

CLIMATE AND WEATHER MEAN  
PRETTY MUCH THE SAME THING.

- TRUE
- FALSE
- DON'T KNOW



Start Over





Gikinoo'wizhiwe Onji Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

### QUESTION 3:

CLIMATE AND WEATHER MEAN  
PRETTY MUCH THE SAME THING.

- TRUE
- FALSE
- DON'T KNOW

**INCORRECT!**

Please try again.

Start Over





Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

QUESTION 3:

CLIMATE AND WEATHER MEAN  
PRETTY MUCH THE SAME THING.

- TRUE
- FALSE
- DON'T KNOW

Next Question >

**CORRECT!**

*Weather refers to conditions over shorter periods of time. Weather is measured daily by instruments like thermometers. Climate refers to long term weather trends in an area. Climate is measured statistically over decades.*

Start Over





Gikilno'wizhiwa Daji Waakan (Guiding for Tomorrow)  
"Q-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

## QUESTION 4:

GLOBAL WARMING WILL BE  
BENEFICIAL TO INDIGENOUS CULTURES

- TRUE
- FALSE
- DON'T KNOW

Start Over



Gikinoo'wizhiwe Onji Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

## QUESTION 4:

GLOBAL WARMING WILL BE  
BENEFICIAL TO INDIGENOUS CULTURES

- TRUE
- FALSE
- DON'T KNOW

**INCORRECT!**

Please try again



Start Over



Gikinoo'wizhiwe Onji Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

## QUESTION 4:

GLOBAL WARMING WILL BE  
BENEFICIAL TO INDIGENOUS CULTURES

- TRUE
- FALSE
- DON'T KNOW

Next Question >



### CORRECT!

Indigenous cultures, such as Native American tribes, are place-based. Many Native Americans live within a legally established land base, such as a reservation. Their cultural practices have evolved over generations based on their knowledge of using the plants and animals living there. Tribes are not able to "move" the boundaries of their reservations because the climate is changing. Native Americans are expected to be among the population groups most vulnerable to adverse effects of climate change.

Start Over



Gikinoo'wizhiwe Ojii Waaban (Guiding for Tomorrow)  
"G-WOW" Changing Climate, Changing Culture

Main Screen

Games

TEST YOUR CLIMATE CHANGE KNOWLEDGE

## QUESTION 5:

HOW IMPORTANT IS THE ISSUE OF  
GLOBAL WARMING TO YOU PERSONALLY?

- |  |   |
|--|---|
| <input type="checkbox"/> EXTREMELY IMPORTANT | <input type="checkbox"/> NOT TOO IMPORTANT    |
| <input type="checkbox"/> VERY IMPORTANT      | <input type="checkbox"/> NOT AT ALL IMPORTANT |
| <input type="checkbox"/> SOMEWHAT IMPORTANT  |   |

Start Over



Main Screen

## Games

### TEST YOUR CLIMATE CHANGE KNOWLEDGE

# QUESTION 5:

HOW IMPORTANT IS THE ISSUE OF GLOBAL WARMING TO YOU PERSONALLY?

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> EXTREMELY IMPORTANT | <input type="checkbox"/> NOT TOO IMPORTANT    |
| <input type="checkbox"/> VERY IMPORTANT                 | <input type="checkbox"/> NOT AT ALL IMPORTANT |
| <input type="checkbox"/> SOMEWHAT IMPORTANT             |   |



## YOU MUST DECIDE FOR YOURSELF.

Think about evidence of climate change impacts on the cultural traditions you enjoy. Examine the scientific climate change research. Weigh the facts carefully. Do culture and science agree that climate change is happening? What will you do about it?

Return to Games

Start Over

# Ripples



- Expanding the G-WOW model throughout Ojibwe Ceded Territory via tribal colleges.
- Partnering with climate change education centers to integrate the G-WOW model including the:
  - Will Steger Foundation,
  - Aldo Leopold Center-Menona, WI
  - CYCLES-Teachers Discovering Climate Change Through Native Perspectives, University of MN
- Outreaching the G-WOW model statewide as a method of increasing climate change literacy to people of all cultures.

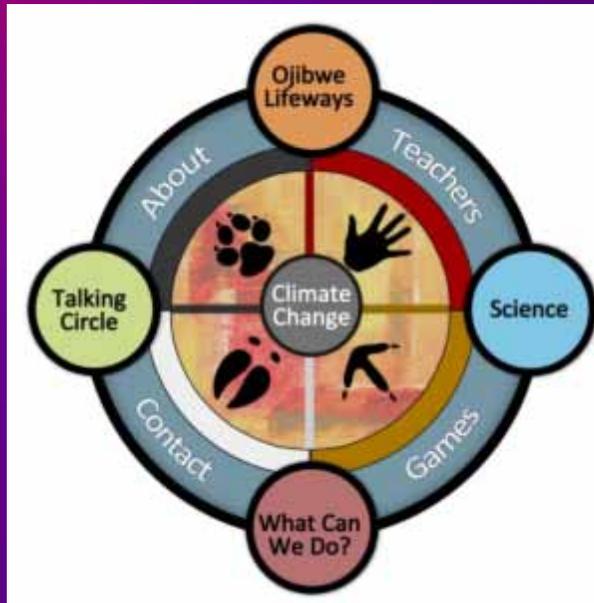
**The G-WOW Initiative has been chosen for an Honor Award from the Eastern Region of the US Forest Service, submitted for a USFS National Award**

**Featured in the Wisconsin Natural Resources Magazine**

The Ojibwe believe that we must think seven generations ahead when making decisions today. All cultures share responsibility for protecting their home, the Earth. We cannot eliminate all the risks that climate change presents, but we can make a difference in slowing its impacts. The culture and lifeways of future generations will be affected by the choices we make.

**Do Culture and Science Agree?**  
**Is climate change affecting your culture, lake, or community?**  
**You Be the Judge!**

[www.g-wow.org](http://www.g-wow.org)



Miigwech !  
Thank you!

For more information, please contact  
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715.561.2695  
[catherine.techtmann@ces.uwex.edu](mailto:catherine.techtmann@ces.uwex.edu)