



EVERY ACTION MATTERS

CLASSROOMS TAKE CHARGE

Service-Learning Lesson Plan

Project: School-Wide Carbon Reduction Competition

Author: Katie Lyons at Marshall High School in Bend, OR

Project Overview: This project poses grade-level advisory classes in a school-wide competition to track and reduce carbon emissions through the Communities Take Charge website. One individual class of Earth & Space students learning about climate change will become the teachers in a lesson that leads students through the website and builds awareness about carbon footprints.

Learning Objectives

Students determine how daily activities impact carbon emissions. Students select five ways to reduce carbon emissions and track progress monthly. Students teach others how to track ways to reduce carbon emissions.

How were the learning objectives evaluated?

Students reported back to the Communities Take Charge website to track their progress on their goal setting. Students responded to an exit survey to explain how their daily choice impacted carbon emissions. Teachers assisted in the assessment of how well students were able to teach a lesson on explaining the need to reducing carbon emissions and how to select various individual actions.

Service Objectives

The goals of this project are to increase awareness around energy use and carbon emissions and encourage staff, students and community members

Subject Areas: Earth Science, Ecology, Natural Resources,

Grade Levels: 7th, 8th, 9th, 10th, 11th and 12th

Materials Needed:

- Access to computers, ipads, or other devices.
- We Reduce powerpoint

Key Partners:

- Administrator: helped schedule and facilitate school-wide dates for WE Reduce lessons
- Advisory Teachers: participated in a trial run of the school-wide lesson and helped students to run lesson successfully
- District IT Department: ensured the smooth operations of website for school-wide roll out
- District Sustainability Coordinator: organized professional development events to share this opportunity and website with other educators around the district

Time Required to Complete Project:

- One month

to make different choices that will positively impact the environment.

How were the service objectives evaluated?

The objectives were evaluated by analyzing the school data on the Classrooms Take Charge website and seeing if we were able to meet our goals. Students reflected on the process of teaching the lessons, analyzed the data, and reflected on how the data may or may not reveal successes on their lesson teachings.

**Human Energy Systems Units Used
(For lesson plans visit: carbontime.bsccs.org)**

Activity 1.1 Human Energy Systems Unit Pretest

Activity 3.1 Millions of Flasks of Air

Activity 3.2 The CO₂ Trend: Your Ideas about the Keeling Curve

Activity 3.3 Why We Care About the Keeling Curve

Activity 4.1 Finding the Carbon

Activity 4.3 The Seasonal Cycle

Activity 4.5 Follow the Carbon

Activity 5.2 Energy Scenarios

Activity 6.2 Extreme Makeover: Lifestyle Edition

Activity 6.3 Secrets Revealed

Lessons & Activities (See below.)

- Powerpoint for Advisory Classes (students as teachers)

Project Milestones

- Staff training on Classrooms Take Charge website (Oct)
- Pre-assessment on Human Energy Systems Unit (Oct)
- Human Energy Systems (keeling curve, seasonal fluctuations, lifestyle choices, pumphandle video & discussion, energy scenario card) (Oct)
- Wednesday advisory lessons taught by Earth/Space students (mid-Oct)
- Post-assessment on Human Energy Systems Unit & Climate Change reflection (Nov)
- Follow-up advisory lesson school-wide (Reporting back actions) (Jan)

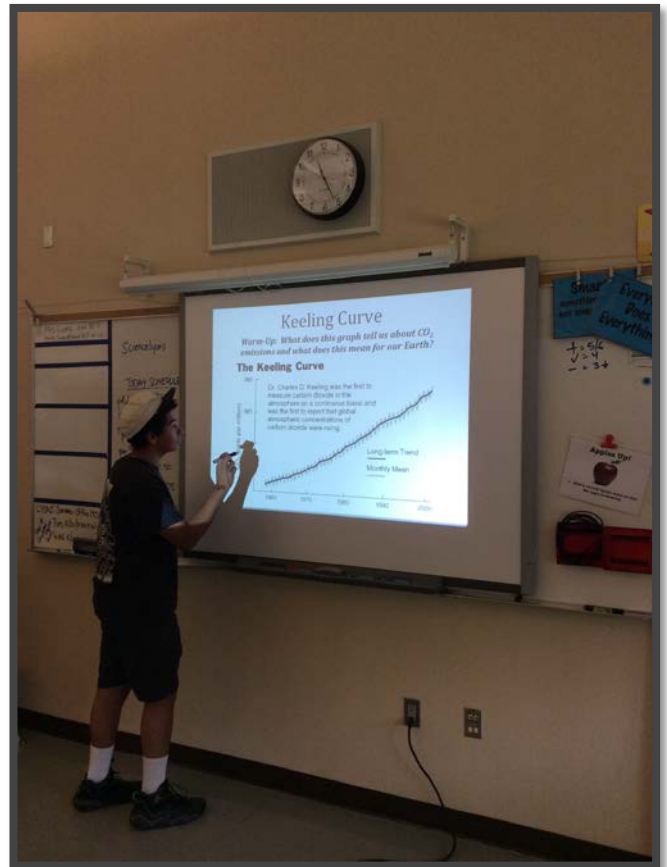


Photo: Student explaining the Keeling Curve to an advisory class.

Powerpoint for Advisory Classes

Slide 1



Slide 2

How can we reduce Carbon Emissions?

Psych. Of Success Lesson: May 25th

o**Goal:** I can use the Communities Take Charge website to select 5 actions that will reduce carbon dioxide emissions into the atmosphere.

o**Need:** ipad or computer

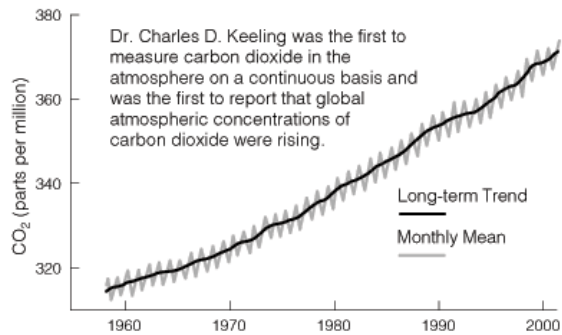
Why are we doing this?



Keeling Curve

Warm-Up: What does this graph tell us about CO₂ emissions and what does this mean for our Earth?

The Keeling Curve



Pumphandle

- How do our current CO₂ emissions compare with historic emissions?
 - Watch this video and be sure to watch the date and note when the graph starts to look “back in time.”
 - Pumphandle [Video](#)
 - How do CO₂ emissions relate to energy use?
Turn & Talk, be prepared to share.

Take Charge “Actions

- We need to reduce carbon emissions!
- Our goal today is to personally have you use the Communities Take Charge website to select 5 actions that will reduce carbon dioxide emissions into the atmosphere.
- Those students that select actions and return next month (during a psychology of success class) to report on those actions...will earn points for their “class”.
- PRIZES! The graduating class with the highest percentage of reporting back students will earn a HUGE prize!

<http://communitiestakecharge.org/>
OR
open in I-NIGMA app



Step 1:

- oClick on “choose actions”
- oSelect “I am a new user”
- oSelect “Bend”
- oAnswer the following questions (by answering honestly you will be shown RELEVANT energy-saving option first to help narrow down the big list of choices.

Step 2:



- o Choose energy saving actions to “add to your cart”...this is just like shopping.
- o To get more information on the action, just click on the picture and info pops up. Each action is described by the carbon saved, the time needed and the cost to implement.
- o PLEASE don't select actions you are already doing...try to challenge yourself to try something new!
- o Once you have selected 5...proceed to checkout then STOP AND WAIT FOR INSTRUCTIONS!

Step 3:

- o Answer the following questions about each action you chose.
- o Select **Marshall High School**
- o Then select your **graduating class**...there will be a contest for the greatest percentage of participation in this activity!



Step 4: *IMPORTANT*

- o Complete the information about yourself
- o **IMPORTANT: Please use your BLS email address and student id # as your password.**
 - o You will need to log back in next month so this is important so you don't forget your log-in.
- o What next?...we will be logging back in next month to see what actions you actually tried! You will be competing against all the other classes and staff for a prize. The highest percentage of students to report back will win a prize...what is the prize?
- o **EXIT TICKET: what would you like to win? Be realistic but provide us with suggestions...pizza party? ice cream? refillable water bottles? what else?**