

**The Global Warming Express
2016-2017 Curriculum**

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Session Outline

Fall Sessions

1. Intro to GWE and the Globe
 - a. Kids are introduced to the idea that the Earth is getting warmer, as if it had on too heavy of a blanket that it can't kick off.
2. Climate and Weather
 - a. What is the difference between climate and weather?
 - b. How do clouds form?
3. What is Climate Change?
 - a. Slow climate changes in the past vs. FAST climate changes now.
4. The Industrial Revolution & Fossil Fuels
 - a. Read "Buried Sunlight" by Molly Bang
 - b. Industry is the main source of the very fast climate change that we see today.
5. Fossil Fuels, Part 2
 - a. Activities "making fossils" and showing how organic materials burn.
6. The Carbon Cycle
 - a. Read "My Light" by Molly Bang
 - b. Introducing concepts of the carbon cycle, and different names for CO₂
7. Photosynthesis: Plants Rule!
 - a. Read "Living Sunlight" by Molly Bang
 - b. Drawing photosynthesis
 - c. Possible play/activity about photosynthesis
8. More About Plants
 - a. Soil and Compost as Carbon Sinks
 - b. The Geosphere and Biosphere
9. The Water Cycle
 - a. Video about the Hydrosphere and Atmosphere
 - b. Drawing the water cycle
10. Greenhouse Gases
 - a. They are both GOOD and BAD, depends on the amounts!
 - b. Acting out the effects of greenhouse gases
11. The Greenhouse Effect and Too Much Greenhouse Gases
 - a. Repeat greenhouse gas activity
 - b. Short films on effects of Greenhouse Gases
12. Field Trip to SFCC *or* film, "Chasing Ice"
13. Tar Sands Videos
 - a. Introducing kids to Action on Climate Change
14. Holiday Party
15. The GWE Book! Chapters 1-5
 - a. Introducing kids to an example of what they can accomplish!
16. The Book, Chapters 6-10
17. The Book, Chapters 11-16
18. Book Reviews
19. Reading the Book Reviews
 - a. Why are books important?
20. Action! Part 1
 - a. What do we want to do this Spring?
21. Action 2
 - a. Example: Solar Energy
22. Action 3
 - a. Example: Writing letters about Solar Energy

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23. Action 4
 - a. More letter writing
24. Action 5
 - a. Example: Composting
25. Action 6
 - a. Example: "The Story of Stuff"
26. Action 7
 - a. Example: Writing Speeches
27. Action 8
 - a. Big Goals and Small Goals
 - b. Continue working on speeches
28. Action 9
 - a. Decide on Goals
 - b. Decide who is giving speeches, and on what
29. Action 10
 - a. Continue working on goals and speeches
 - b. Create invitations to end of year party
30. Action 11
 - a. As above
31. Action 12
 - a. As above
32. Action 13, Completion!
 - a. As above
33. Final Day
 - a. Assess where the goals are
 - b. Give Speeches
34. Party!
 - a. Take video, interviewing GWers about the year and their accomplishments
 - b. Give Final Assessment
 - c. Give diplomas, awards, etc.

Session 1: Intro to GWE and the Globe (Sept. 6, 7, or 8)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose leaf, Pens/pencils/crayons etc, **Large Globe(s), small globes, small blankets/scarves**

Vocabulary Goals: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere

Begin Snack, have everyone sit down on the blanket and introduce themselves

1. Why on Earth am I here with you today?
2. Earth is not feeling very happy right now.
3. Why is that? Any ideas?
4. Climate change is happening.
5. Where are some important places on the globe? **North Pole/aka Arctic, South Pole. aka Antarctic, Equator**, Greenland, Alaska, Africa
6. Where is your family from on this globe?
7. Globe and Blankets exercise
 - a. Show students that the earth globe is usually covered with **atmosphere** that keeps it warm (thin cloth)
 - b. Over the past 200 years, the cloth has become a blanket and the earth cannot kick off its covers when it is too hot.
 - c. Demonstrate on the globe,
 - d. Then with a volunteer,
 - e. Then break into groups to see how it feels - groups of 2-3
8. What is climate and what does that have to do with the exercise?
9. Assignment - this week, talk with teachers, grownups, and other kids to find out what the difference is between climate and weather
10. Next week, we will talk this over and then investigate how the Earth's climates are changing and why.
11. Students write/draw in their folders w/ looseleaf about the globe exercise. (How they felt being "trapped", etc.)
12. Hand out permission slips to allow for photos and videos of the students, their artwork and their written work.

Alyssa's Homework: Make name tag for each student, label one folder for each student, place name tags in folder, file this week's journal entry in filing box, and prep folders for next week.

Session 2: Climate and Weather (Sept. 13, 14, or 15)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, **access to Smart Board.**

Vocabulary Goals: Weather (the condition of our planet's atmosphere, which is constantly changing), **climate** (the weather conditions in an area in general, or over a long period of time), **condensation** (water that collects as droplets on a cold surface when humid air is in contact with it.)
Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere

Snack: Talk about the weather that month/week/day. Who remembered to ask people about the difference between climate and weather? Talk about that.

1. Watch "Crash Course Kids" video on Weather vs. Climate
<https://www.youtube.com/watch?v=YbAWny7FV3w>
2. Then, go to images of clouds. <https://scied.ucar.edu/webweather/clouds/cloud-types>
3. Have students get up and become clouds.
 - a. There must be three main ingredients present in order for clouds to form:
 - i. Moisture - There must be sufficient water vapor in the air to build a cloud.
 - ii. Cooling air - The air temperature must decrease enough for water vapor to condense.
 - iii. Condensation nuclei - Tiny particles, invisible to the human eye, such as dust, dirt, and pollutants, provide surfaces on which water molecules can gather and condense into water droplets.
 - b. In groups, start with 2-3 water vapor molecule students and 2-3 dust particle students. Water vapor student links arms with the dust particles. Once they are linked, their group joins arms with other groups, till all are linked.
 - c. One student is the sun. One is the wind. Wind blows clouds to cover the sun. Temperature drops and everyone in their cloud shivers. The water molecules get very cold and heavy.
 - d. All fall down as rain because they are so heavy.
4. Students write and draw in looseleaf in their folders about climate, weather and clouds.
5. Assignment- look for clouds, precipitation and weather this week!

Collect permission slips from parents to allow for photos and videos of the students, their artwork and their written work.

Session 3: What is Climate Change? (Sept 20, 21, or 22)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, **globes (3 or 4) globe balls (10), access to Smart Board.**

Vocabulary Goals: Climate change (a change in global or regional climate patterns)
Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation

Snack and talk about last week and what kinds of weather you saw over the week.

1. Climate Change- watch Bill Nye the Science Guy:
<https://www.youtube.com/watch?v=EtW2rrLHso8>
2. Repeat the video to 1:12 and review:
3. Climate change has always happened slightly and slowly – over a long time, in part because of changes in earth’s orbit and other events, such as volcanic activity.
4. Who can think of one kind of reptile that became extinct? Dinosaurs went extinct in several months, due to an asteroid hitting the earth. The climate changed instantly, many times in months. Finally, when all dinosaurs were extinct, other forms of life began to grow and mammals were born and became—us!
5. After that, climate changed slowly, until The Industrial Revolution.
6. Students draw and write in their looseleaf in folders (Topics: how the dinosaurs felt, what kind of weather the dinosaurs liked, what is your favorite kind of weather, what do you think would happen if our climate changes really fast, etc.) (30+ minutes)
7. Assignment- What is a revolution ? What does industrial or industry mean?– Discuss next week. Also, ask if any of the kids are confident readers and would like to help me read a book next week.

Alyssa’s homework: Get library books about the Industrial Revolution with age-appropriate pictures, get “fossils”, real or simulated, for activity next week.

Session 4: The Industrial Revolution and Fossil Fuels (Sept. 27, 28, or 29)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **books (from library) on the Industrial Revolution, *Buried Sunlight* by Molly Bang, fossils (one per kid), access to Smart Board.**

Vocabulary Goals: Fossil fuel (a natural fuel such as coal or gas, formed in the geological past from the remains of living things), **Industrial Revolution** (About 200 years ago, we started using lots of fossil fuels for steam power, machines, factories, and transportation)

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change

Snack and talk about last week and who found out about Industry and Revolution. Discuss over snack.

1. Either read to the kids, or ask for confident reading volunteers, to read *Buried Sunlight* by Molly Bang. Then explain/clarify as follows:
2. Unlike the time of the dinosaurs, the climate is not changing many times in a number of months. However, since the 1800's when Industry became mechanized and used fossil fuels and generated gases from burning, the climate is being affected relatively quickly.
3. When were the 1800's? 200 years ago. In less than 200 years, industry has changed the world a LOT.
4. Here are some books about the Industrial Revolution. (go through some of the images)
5. Once we created engines, we needed fuel for them- how did people get fuel (energy)?
6. We found something called fossil fuels.
7. What is a fossil? Has anyone here ever found one? Pass around fossil. Fossils can be found right here in Santa Fe!
8. Describe how fossils get made- buried and turned into petroleum, coal & natural gas.
9. Watch Student Energy: Fossil Fuels 101 on YouTube
<https://www.youtube.com/watch?v=zaXBVYr9Ijo>
10. Journal and draw

Alyssa's Homework: Get materials for next week's activity

Session 5: Fossil Fuels, Part 2 (Oct. 4, 5, or 6)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, ***Buried Sunlight***, **clay (3 different colors) small pieces of plants, wooden matches, jar.**

Vocabulary Goals: no new vocabulary this week

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution

Snack and review/finish reading *Buried Sunlight*. What is the buried sunlight in the book? Fossil fuels!

1. Make your own fossil activity:
2. Make your own coal, gas and oil fossil fuels by layering the different colored clay. Lowest is coal, then oil, then gas. To each layer, add a plant stem or two. If this were real fossil fuels, the plants would have already composted and turned into fuels.
3. Now break into groups of 4 and decide how to act out how plants turn into fossil fuels.
4. What happens when the fossil fuels get burned?
5. Look at a match. What is it made of? Something to make it light and something to light (wood). What is wood? Part of a tree. What is it made of? 1/2 of the dry weight of wood is carbon. When I light the match, the carbon burns and forms smoke on the inside of a jar.
6. Demonstrate outside.
7. Journal and draw.

Session 6: The Carbon Cycle (Oct. 11, 12, or 13)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, *My Light* by Molly Bang, access to Smart Board.

Vocabulary Goals: Carbon (an element that makes up the bodies of plants and animals, is found in fossil fuels, and is also found in our atmosphere), **Carbon Dioxide** (a gas that plants use, that animals breathe out, and that is made by burning fuels that have carbon)

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution

Snack and review fossil fuels

1. Read/take turns reading *My Light* by Molly Bang
2. Discuss and explain.
3. View NASA Keeping up with Carbon: <https://youtu.be/HrIr3xDhQoE> (5:38)
4. Discuss what the carbon cycle is: Carbon (plants made of it, we eat them, we have carbon, too), living plants and animals, compost or decompose, turn into carbon in the ground or ocean, get dug up and used for fuel, fuel burns, burning releases CO₂ and methane.
5. Watch animation : What's the Deal with Carbon? <https://youtu.be/2Jp1D1dzzj8> (3:04)
6. Journal and draw.

Session 7: Photosynthesis: Plants Rule! (Oct. 18, 19, or 20)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, *My Light and Living Sunlight*, *Climate Change*, *Sneideman & Twamley*, (Heather has this book), plants in pots.

Vocabulary Goals: Photosynthesis (Using sunlight, plants use water (H₂O) and carbon dioxide (CO₂) to make sugars (carbohydrates) and oxygen (O₂))
Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution, Carbon, Carbon Dioxide

Snack: finish or review *My Light*, by Molly Bang

1. Discuss.
2. Move to next book- *Living Sunlight*, by Molly Bang. Take turns reading and discuss.
3. Read pp 50-52 from *Climate Change* by Sneideman & Twamley (Heather has this book) to understand the cycles of CO₂ and O₂.
4. Break into groups of 2-5
5. Each group draws their version of photosynthesis (I may provide a sample on a whiteboard or poster)
6. Finish with journal about photosynthesis
7. Notice how many plants you have in your life this week- count them!

If time permits, I may introduce the Photosynthesis Play where kids pretend to be Oxygen, Carbon, and Hydrogen and form the different compounds of sugars, CO₂ and O₂. It will depend on time and if I think the kids are getting the concept so far.

Alyssa's Homework: Prep worm compost bin for next week.

Session 8: More about Plants ! (Oct. 25, 26, or 27)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **“My Light” and “Living Sunlight”, “Climate Change” Sneideman & Twamley, (Heather has this book), plants in pots, Worm Compost Bin, access to Smart Board.**

Vocabulary Goals: Soil (The top layer of earth that plants grow in. It’s a mix of compost, dirt, and rocks), **Compost** (Decayed organic material that helps plants grow).

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution, Carbon, Carbon Dioxide, Photosynthesis

Snack- talk about how many plants you have in your weekly life?

1. Finish large pictures of photosynthesis
2. Each group explains the drawings.
3. Watch: www.thesoilstory.com (3 min)
4. Watch “Crash Course Kids” Geosphere and Biosphere: <https://youtu.be/VMxjzWHbyFM> (4:00)
5. Talk over that content. What more did you learn about plants and why they are so cool? How about soil? What did you learn about soil? Is soil the same thing as dirt? Is dirt without any plants growing as helpful as dirt with plants growing? And what about compost? What IS that?
6. Show worms and compost
7. Journals- pictures and words about soil and climate change
8. Homework: think of 4 kinds of plants that you would like to grow in your home.

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Session 9: The Water Cycle (Nov. 1, 2, or 3)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **access to Smart Board.**

Vocabulary Goals: Condensation (review from previous), **Evaporation**(a liquid changing to a gas), **Precipitation**(rain, snow, sleet or hail that falls to the ground).

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution, Carbon, Carbon Dioxide, Photosynthesis, Soil, Compost

Snack : Talk about what water means to us here in the high desert. Does anyone here have a well at home? Live near a river? Irrigate a garden?

1. Go to: “Crash Course Kids” The Great Aqua Adventure <https://youtu.be/z5G4NCwWUxY> (4:29)
1. Explain the water cycle.
2. On paper in folders, Write Condensation, Evaporation, Precipitation.
3. Draw the water cycle!

Add ons:

- Write songs about the water cycle, perhaps with help from others?

Session 10 : Greenhouse Gases

(Nov. 9 or 10 if Wednesday or Thursday Classes, Nov. 15 if Tuesday class, due to SFPS Election Day closure on 11-8)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **large papers with songs, access to Smart Board.**

Vocabulary Goals: Greenhouse Gas (a gas that contributes to the greenhouse effect by absorbing the sun's energy), **Carbon Dioxide** (add to previous definition: an important greenhouse gas, often called CO₂)

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution, Carbon, Carbon Dioxide, Photosynthesis, Soil, Compost, Evaporation, Precipitation

Snack- Review globe and blanket exercise by asking the kids to prompt each step.

1. Intro of Greenhouse Gases:
2. What is a greenhouse? Go over some of the images here:
<http://www.shutterstock.com/s/greenhouse/search.html>
3. Go to video of the Global Warming Express performing:
<https://www.facebook.com/theglobalwarmingexpress> (2:24)
4. Go over the words to the song: see below
5. Discuss the terms: CO₂, Methane, Nitrous Oxide and Water Vapor
6. Show video: What is the Greenhouse Effect? https://youtu.be/BPJJM_hCFjo (2:03)
7. So CO₂, Methane and Nitrous Oxide (and water vapor) are GOOD.
8. Except when they bring all their friends and relatives. Imagine all of them in that video, Multiplied by 1,000.
9. That is what is happening now and the now the Earth is TOO Hot. Back to the blanket experiment on the first day of GWE! Like the song says: CO₂, Methane, global warming- tame them!
10. Finish by becoming the Greenhouse gases, the Earth, and outer space and acting out Greenhouse Effect.

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The Global Warming Express Song

a train! a book! a website! an organization!
bada bada badaa
the fluff came from Antarctica and ended in the U.S.A
flora came from the north pole 'cause ice was meltin' away
creamy came from a little ol' zoo that didn't get very much pay
little croissant is just a bird so he doesn't have much to say
la dida didaa
stop global warming, stop global warming
global warming, do something now and save the planet! stop burning fossil fuels, start that today,
and sooner or later you'll be moving the right way
the earth is hanging by a string, we need a light bulb that goes bing!
stop global warming!
we are the Global Warming Express
be aware! be aware! be aware!
be be be aware aware
we don't want to cause a fuss,
but seriously?
start riding the bus!
it's easy!
you walk, start walking! you rock, start rocking! you bike, it's fun! we like, you'll love it! it's far,
just too far! take a car,
solar power electric!
vvvooooooooommm
CO2! methane! global warming! tame them!
join us on our quest, to do what's really best!
weeeeeeeeeeeeeeee

Session 11: Greenhouse Effect and Too Much Greenhouse Effect (Nov. 16 or 17 if Wednesday or Thursday Class, Nov. 22 if Tuesday class. Thanksgiving Break on Nov. 23, 24, 25)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **shells, coral samples, access to Smart Board.**

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution, Carbon, Carbon Dioxide, Photosynthesis, Soil, Compost, Evaporation, Precipitation, Greenhouse Gas

Snack and go over the shells and corals- what do they look and feel like?

1. Go through the Greenhouse Effect Play again
2. Repeat till everyone has turns in different locations
3. What happens when there is too much heat in the earth?
4. Show films:
 - a. Ocean Acidification by the Alliance for Climate Education <https://youtu.be/Wo-bHt1bOsw> (3:02)
 - b. Frozen Planet: Disappearing Penguins (can't find this video...)
 - c. The Pacific Adventures of the Climate Crab <https://youtu.be/sIUSWEftN4w> (4:47)
5. The shells and corals are really having a hard time now. Why do we care if we live in the high desert and not at the ocean?
6. Journal- why are oceans important to us in NM?

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Session 12: (Nov. 29, 30, Dec. 1)

Materials: **If not taking Field Trip, usual materials and access to Smart Board**

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution, Carbon, Carbon Dioxide, Photosynthesis, Soil, Compost, Evaporation, Precipitation, Greenhouse Gas

Field Trip to SFCC Renewable Energy Areas*? OR
Showing of the 60 minute film of Chasing Ice*

Contact for the Biofuels Program at SFCC: Luke Spanenburg: luke.spangenburg@sfcc.edu
Contact for Hydroponics and Greenhouse: Eric Highfield: eric.highfield@sfcc.edu

*Chasing Ice DVD may be bought or borrowed from Erin Gaddis (science teacher- Rio Grande School): erin_gaddis@riograndeschool.org The film can be shown in various, edited times, from 1/2 hr to the full film), or viewed on Netflix if the school internet connection will allow it.

Discussion after film or after field trip.

Session 13: The Tar Sands Videos (Dec. 6, 7, or 8)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **access to Smart Board**

Past Vocabulary: North Pole, South Pole, Arctic, Antarctic, Equator, Atmosphere, Weather, Climate, Condensation, Climate Change, Fossil fuel, Industrial Revolution, Carbon, Carbon Dioxide, Photosynthesis, Soil, Compost, Evaporation, Precipitation, Greenhouse Gas

Snack: explain what “tar sands” are, and why we are going to such lengths for oil.

1. Tar Sands Oil Extraction: The Dirty Truth <https://youtu.be/YkwoRivP17A> (11:38)
2. Tar Sands Action <https://vimeo.com/27902739> (4:39)
3. Discussion- what do you think? How do these videos make you feel? What needs to happen?
4. There were lots of protests: <http://2014.peoplesclimate.org> (1:26)
5. The People’s Climate March in NYC happened 2 years ago. There were almost half a million people marching in the streets of New York City. People came from all over the world to march. A lot of people were marching about the Keystone Pipeline and urging President Obama to say NO to it. Marina Weber and her mom, Genie, were there:
<http://theglobalwarmingexpress.org/peoples-climate-march/>
6. So was the leader of the GWE group at Cien Aguas school in ABQ:
<http://theglobalwarmingexpress.org/cien-aguas-joins-gwe/>
7. How do you GWEers want to “Be Somebody” around the issues of Climate Change?
8. People all over the world were marching in their cities at the same time. There was even a march here in Santa Fe that the GWE kids attended.
9. What are 10 ideas we can come up with to help get the message to the grownups in Santa Fe? Your parents, your teachers, your Principal, your Superintendent of schools, your city council, your Mayor?
10. Break into groups and write the ideas in your journals. Decide which Idea(s) you would like to do. Make some plans and write about them!
11. After the winter break, we will come back to put some ideas into action. We will also read the book, The Global Warming Express, by Marina Weber, illustrated by Joanna Whysner, when they were in 5th grade. Maybe you GWEers want to write a book?!

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Session 14: “Holiday Party”: (Dec 13, 14, or 15)

Materials: party food, assessments (?)

Holiday Party!

Assessments given and collected

Wed., Jan. 4 (Tues, Jan 3 is winter break)- May 24, 2017

(17 or 18 potential sessions till end of school)

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Session 15: The GWE Book! Chapters 1-5

(Wednesday Jan 4, Thursday Jan 5, or Tuesday Jan 10)

Dates from here on get confusing due to Parent Teacher Conferences, Holidays, etc. I will be able to give accurate dates when I know which days of the week I am working)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **Copies of the book, The Global Warming Express.**

Snack: Discuss winter break- what were the highlights for you? Remind students that this half of the year is for the GWEers to learn about the solutions to global warming and how to be part of the solution! Here is the first time that the GWEers went to a party to be part of the solution, when they were in 4th & 5th grade: <http://theglobalwarmingexpress.org/an-evening-with-senator-tom-udall/>

1. Pull out the books and pass around to have each student have one or to have groups of 2 or 3 share a book.
2. Here are pictures of Marina and Joanna when they were in 3rd grade:
<http://theglobalwarmingexpress.org/about-the-global-warming-express/>
3. This is when Marina decided to write a book and Joanna agreed to do the illustrations. They made up this bumper sticker, too!
4. Read the book through to the 5th chapter, The Fire, with the students following along. (30 minutes)
5. Discuss and journal.

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Session 16: The Book, Chapters 6-10

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **Copies of the book, The Global Warming Express.**

Snack- talk about the book from last time. What climate change issues have been covered in those chapters? What is the scariest part? Why? What is the funniest part? Why? Who is your favorite character so far?

1. Read Chapters 6-10, Greenhouse, Flora, Edgar, Tipping Point, Tar Sands
2. Discuss and Journal

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Session 17: The Book! Chapters 11-16

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **Copies of the book, The Global Warming Express.**

Snack- Discuss the chapters from last time.

1. Remind the Students about the Tar Sands. Find the Tar Sands, Glacier Bay National Park and Hudson Bay on the globe. Remind students that the rallies and marches against the Keystone Pipeline worked, but that there is a pipeline in the next chapter. Here is a copy of info on the GWE FB about the GWers' Keystone Pipeline Rally, which ended up working! : To look it up, go to: <https://www.facebook.com/theglobalwarmingexpress> and scroll down to Nov 6, 2015.

The Global Warming Express added 4 new photos.
Published by Genie Stevens · November 6, 2015 ·
BREAKING: Keystone XL pipeline rejected by Obama!

Hi GWers past and present!

Thanks to you and to thousands like you, 2 years after you stood and sang in the cold, your efforts have paid off! The Keystone Pipeline has been officially rejected by the President. AND, the people behind the Tar Sands and the pipeline are losing support rapidly, even in Alberta, Canada, which is why they recently asked Obama if they could have a "timeout", to buy themselves some time, so that he would not make a decision right now. But he DID make a decision and it was not the one they wanted!

Thank you, Elena, Rowan, Helen, Amea, Avi and Marina for standing up for what you believe in! Never doubt the power of your own voice!

KIDS CHANGE THE WORLD!

(photos by Lisa Law)

2. Read the book, chapters Lady Athabasca, the Gulf Coast, Acorn Creek, New York City, the White House to finish the book!
3. If time, journal.
4. Discuss next time.

Session 18: Review of the Book
(Wednesday, Jan 25, Thursday, Jan 26, or Tuesday, Jan 31)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **Copies of the book, The Global Warming Express.**

Snack: Talk about the book

1. What is a book review? Talk about that and ask GWEers to each write their own review of the book on the paper you give them. They can work in groups so that they can see the book, if there are only enough to share. Their book review ought to be at least 11 sentences and address these questions:
 - a. Did you like the book?
 - b. Why? Why not?
 - c. Do you have a favorite character?
 - d. Why is that your favorite character?
 - e. What is the scariest part of the book? Why?
 - f. What is the most comforting part of the book? Why?
 - g. Why would you want every 3rd thru 6th grader in the country or the world to read the book?
 - h. Why would you want your parents to read the book?
 - i. Who else ought to read the book?
 - j. What is the best ending for the book?
 - k. What should the next book be about?

Assignment: Find a review of a book this week (hint- look at the back of some books)

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Session 19: Reviews

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **Copies of the book, The Global Warming Express.**

Snack: Read the review on the back of the Global Warming Express.

Did anyone find a review of a book?

1. Continue with your Review. Draw pictures to go along with your Review.
2. Complete Reviews.
3. Begin to read them out loud to the Class.
4. Journals: Why I liked writing a review OR Why reviews of books are important.

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Session 20: Action! Part 1

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **Copies of the book, The Global Warming Express, the last week's Reviews, Large paper or whiteboard on Easel.**

Snack- talk about why book are important, what we thought of the GWE Book, what we liked about writing the reviews.

1. Complete reading of the Reviews
2. Discuss the Reviews and their similarities and differences.
3. Take a look at all that you have learned (give them a list of all the topics they have covered)
4. Now it is time to take Action of your own! Time to learn about the Solutions and to become part of the solution.
5. What are some solutions to Global Warming?
6. Brainstorm on a Big piece of paper: If they do not know solutions, or, along with their solutions, tell them that you will be covering in the next 6 weeks:
 - a. Solar power,
 - b. Wind Power,
 - c. NOT using any fossil fuels,
 - d. Composting,
 - e. Recycling,
 - f. Reusing,
 - g. Not using cars so much
 - h. Getting rid of plastic,
 - i. Public Speaking,
 - j. Performing,
 - k. Creating Action Projects.
 - l. Making signs for school, your home, your library, your city
 - m. SOIL- planting gardens
7. Journal- what are some of my favorite ideas for helping the planet?

Alyssa's Homework: Invite Maria to do a presentation or video and demo about solar energy.

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Session 21: Action 2, Solar

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe.

Snack: what does Solar Energy mean?

1. Maria does a PP or video and demo about solar energy.
2. Talk with Maria about whether the school has solar. If not- Do you want it to have solar? Who would you need to talk to about that? If it does, where else would you want to have solar? Who would you talk to about that?
3. Journal- write and draw about solar

Alyssa's Homework: Invite Ken Hughes to come to talk about wind energy and other renewable energy sources. (have him bring his electric, solar car.)

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Session 22: Action 3, Letters and Renewables

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe.

Snack: Shall we write a letter about getting solar on the school or in your homes? What should it say? Who will write it?

1. Get a start on the letter.
2. Ken comes in and does videos and talk about renewable energy other than solar. Shows students his car and talks about charging it with solar energy.
3. Journal about this session

Alyssa's Homework: Invite Juliana from Reunity Resources to come in to talk next week.

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Session 23: Action 4, Letters and Composting

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe.

Snack- talk about the letter

1. Complete the letter. Decide how it will get to : Your Principal, Lisa Randall, the School Board, the Superintendent of schools, the Mayor, City Councilors, etc – or possibly a lot of them.
2. More actions- how can recycling and composting help with global warming?
3. Juliana Peterson explains about composting and global warming and why your school composts all the leftover food or why it should be composting all the leftover food.
4. Journal about composting and GWE.

Alyssa's Homework: Invite Louise Pape to come to talk about Recycling and Reusing.

You may want to flip the order on these next two:

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Session 24: Action 5, Reduce, Reuse, Recycle

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe.

Snack- talk about how we can all compost - at home- is it possible? Other ideas to be able to create a compost area or bin?

1. Guest Speaker- Louise Pape *does cool games and activities about recycling and reusing stuff, how there is no away, water saving and not using plastic.
2. Journal about these topics.

*Louise Pape: louisepape@aol.com

(Spring Break: March 20-24)

Session 25: Action 6, “The Story of Stuff”

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **access to Smart Board.**

Snack- Watch The Story of Stuff (21 minutes) <https://youtu.be/9GorqroigqM>

1. What does that movie tell us?(grab a number of talking points from the film)
2. Consumption (definition),
3. Consumer, economy, low cost stuff, planned obsolescence (phones, computers even!)perceived obsolescence (new phone??)
4. What can we do? Brainstorm with paper/whiteboard and easel
5. Now we have covered:
 - a. Solar power,
 - b. Wind Power,
 - c. NOT using any fossil fuels,
 - d. Composting,
 - e. Recycling,
 - f. Reusing,
 - g. Not using cars so much
 - h. Getting rid of plastic
6. What do we want to do???
7. Let’s create a Goal- Big or Small or both
8. Think about a Goal or goals by next week!
9. Journal

Session 26: Action 7, Speeches

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **BIG paper and easel, copies of speech templates.**

Snack – talking about speaking- who makes speeches? Martin Luther King, the President...

1. Do you ever make speeches? No? Really? Do you have a little or big brother or sister? Do they ever annoy you? What do you say to them when you are really annoyed? Something like this?
“Alejandro! I told you to never touch my toy/doll/bike! Why did you do that? You broke it! This is the most important thing I own and you broke it! I am telling mom/dad/grandma but I am telling you for the last time NOT TO TOUCH MY STUFF! “
2. Or what about if you want to get something and your parents or grandparents say NO. What do you say?
3. Try it with a partner (a puppy, some new shoes, a Gameboy, a bike..)
4. See? You all make speeches! All the time! And they work- well, usually.
5. Let’s look at how easy it is to write a speech. Here is a list of questions. Once you answer them, you will have a speech!
6. Pass out questions.*(attached) Ask students to come up with one topic that is very important to them.
7. Write the topic as the answer to the first question
8. Start writing your speech (10 minutes)
9. Before you go home today, let’s talk about who you could make your speech for- your teachers? The school? The city council? The Mayor? Let’s include making speeches as a positive action for our list of Goals! Some of you will turn out to be very good at giving speeches, I guarantee.

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Writing Speeches

- What is a speech?
- What is an elevator speech?
- A city council speech?
- A legislature speech?
- Why do we make speeches?
- When have you made a speech that worked? When have you made a speech that did not work?
- When have you ever heard a speech from a public person? (MLK, President Obama, President Kennedy..)
- What makes a GREAT speech?

(Discuss)

Your speech:

Sit quietly and think about ONE topic that you feel strongly about. Using the beginning of these sentences, complete them.

1. What : (1 sentence) I feel strongly about ...
2. Why is it important to you? (2-3 sentences) This is important to me because...
3. Why is it important for you to tell other people about it?(1-2 sentences) It is important for others to know about because...
4. The most important point I have to make is...
5. How can others help you with this topic? You can help! Here is how..(1-3 sentences)
6. What would change for the better if everyone in the world agreed with you about this topic? If everyone in the world agreed with me, what would happen for the better is... (2-3 sentences)
7. Thank the listener(s) for listening to you. I want to thank you for taking the time to listen to me and I invite you to make your own speech!

Writing a Speech

1. What is my topic?
2. I feel strongly about _____ (topic) because.....(at least 2-3 sentences).
 - a. Give examples.
3. It is important that I tell other people about this because.....(at least 2-3 sentences.
4. Give Examples of what would happen if you did not tell other people. Give examples of what would happen if you did tell other people.
5. The most important point I have to make is ...
6. (Explain in 1 or 2 sentences what is the most important thing you can say about your topic. Make it strong!)
7. How you can help me with this problem is.... (give 2-3 sentences with examples of how others can help)
8. If I convinced everyone in the world about the importance of this problem, here is what would happen. (Give 2-3 sentences on how the problem would turn into a solution.
9. Thank you for taking the time to listen to me. Now you can write your own speech!

Getting Over Butterflies and Jitters Before You Speak

It is totally natural to feel nervous before you give a speech. Here are some things you can do before and during your speech to calm your jitters.

Prepare Mentally

- Practice, practice, practice. The more you practice, the more relaxed and confident you will feel. Practice your speech out loud exactly the way you plan to deliver it, while you're standing. Practice in front of your friends and family. You may want to memorize the opening and the closing.
- While you're sitting with your eyes closed, visualize yourself at your best, the way Olympic athletes do. Picture yourself delivering your speech. Picture yourself relaxed, poised and confident. Picture the audience smiling at you and connecting with your message.
- During your speech, focus on your message to the audience, instead of your jitters. You have an important message to deliver! Say to yourself, "I can't wait to deliver an important message to the audience!"

Prepare Physically

- Try not to sit for too long while you're waiting to speak. If you're scheduled for later in the program, sit in a place where you can stand up occasionally. It's hard to jump up and be dynamic when you've been sitting in a chair for an hour.
- Breathe! The number one reason that people get nervous is because they are not breathing deeply. Take deep, slow breaths. Inhale and exhale through your nose without opening your mouth.
- Here is a breathing exercise to do right before you speak. Inhale slowly to the count of three through your nose. (mouth closed) Hold your breath to the count of four. Exhale through your mouth, slowly to the count of five.
- (Repeat this three times)

This is an acting technique. Go to a private spot and shake your legs, one at a time, like you're trying to get gum off the bottom of your shoe. Shake your hands loosely at the wrist. You are physically shaking the tension and nervousness out of your body. This really works! Do shoulder and neck rolls. This will warm you up and relax you!

Session 27: Action 8, Big Goals, Small Goals, Speeches

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **BIG paper and easel, lined paper.**

Snack: Did you notice that you have a lot of stuff at home? In the stores?

1. Goals-Decide on what Goal or Goals we have to do from now till the end of school!
2. Decide how we are going to do it
3. Make a list of the steps.
4. Are we going to all work on one goal or have groups to work on a few goals? We need at least 3 speech writers who will work on speeches to give about your goal.
5. Groups or whole GWE group decide who are the speech makers and the topics of the actions.
6. Begin groups deciding on their goals and their speeches.

Alyssa's Homework: Invite Heather (or Kayleigh, or intern, or other person) to come in to help with the speakers next week.

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Session 28: Action 9, Deciding on Goals & Speeches (5 more sessions left)

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **BIG paper and easel, lined paper**

Snack- introduce Heather (or whoever is helping)

1. Groups decide on actions and steps to be taken
2. Speakers work with Heather to create a speech about the actions
3. Deadline for both is one month
4. Journal for 5 minutes on today's work

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Session 29: Action 10, Goals & Speeches, Invitations

Depending upon the Goals, there may be a lot more materials needed.

Materials: GWE Banner, Large Blanket, Compost bags, Folders, Name tags, Loose Leaf, Pens/pencils/crayons etc, globe, **BIG paper and easel, lined paper**

Snack- Who are we inviting to see the Goal and the speeches?

1. Assign someone to write a letter that you, the teacher, will send to the people to be invited.
2. Keep working on Goals and Speeches.

Remind them that they have 4 sessions left!

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Sessions 29/30/31: Action, Continued, then Completion!

Continue to work on Goals and Speeches

Session 33 – Final Day

Assess where the Goals are and view the speeches

Session 34- Party!

Materials- video camera, party food, diplomas, prizes, etc. , assessments

Take video, interviewing GWEers about the year and what the GWEers accomplished.

Give Final assessment.

Final awards, diplomas, etc.

*Potential Additional Topics (many sourced from the Jan '16 GWE Curriculum)

- The Oceans & Climate Change
- Paleoclimatology (or, How do we know about ancient climate?)
- Soil and Carbon (the biosphere as carbon sink, etc.)
- The Carbon Economy (cap & trade and other ideas)
- Deforestation, its causes and effect
- “Energy is not Equal”
- GLOBE-al Warming (activity with stickers on the globe)
- What is Sustainability?
- Local Food and Sustainability
- More About Photosynthesis
- Renewable Energy in All its Forms
- Climate Change in Santa Fe (How is it affecting us? What are we doing?)

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