

# **YES! Climate Literacy and Behavior Change Evaluation Report 2015-2016 School Year**



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## INTRODUCTION

The following provides a summary of pre and post survey results of participants in the YES! Program during the 2015-2016 school year. The survey sought to measure a few key goals of the YES! Program specific to Climate Generation's involvement during the year providing presentations and workshops at:

- Fall Summit at St. John's
- Fall Summit at Laurentian
- Presentation at Gustavus: Waste emphasis
- Presentation at UMD: Waste emphasis
- Presentation at Prairie Woods ELC: Solar emphasis

**Through the survey we sought to measure change in:**

- An understanding of climate change and how it is relevant to students and their communities.
- An understanding of the connection of how actions impact student's local environment.
- An understanding of the impact their projects have on mitigating climate change.

### Survey Sample

**Table 1. Survey Respondents**

	<u>Number of Survey Respondents</u>	
	Pre	Post
Albany	15	0
Carlton	17	5
Cherry	24	0
Discovery Woods Montessori	7	2
Duluth East	1	0
Eden Valley-Watkins	1	2
Glencoe-Silver Lake	6	0

Lac qui Parle Valley	7	5
Little Falls Middle School	13	2
Mankato West	13	2
Mesabi East	8	2
New London-Spicer	13	0
Northern Lights Community	8	9
Rocori HS	9	2
Royalton HS	6	33
Sartell- St. Stephens MS	37	52
Sleepy Eye	20	17
Springfield	6	9
Westbrook-Walnut Grove (WWG)	3	10
YME	0	3
<b>TOTAL</b>	<b>205</b>	<b>155</b>

## RESULTS FROM PRE AND POST SURVEYS

### Student's Personal Opinions on Climate Change

Table 2. Is climate change happening?

	PRE SURVEY	POST SURVEY ALL	POST SURVEY Central	POST SURVEY Northeast	POST SURVEY Southern	POST SURVEY W.Central
I'm extremely sure climate change is happening	22.51%	28.67%	21.59%	50%	38.89%	20%
I'm very sure climate change is happening	31.41%	24.67%	26.14%	6.25%	30.56%	20%
I'm somewhat sure climate change is happening	30.89%	27.33%	31.82%	25%	13.89%	40%
I'm not all that sure climate change is happening	9.95%	8.00%	5.68%	12.5%	11.11%	10%
I'm extremely sure climate change is NOT happening	1.05%	3.33%	3.41%	6.25%	0%	10%
I'm very sure climate change is not happening	0.52%	2.67%	3.41%	0%	2.78%	0%
I'm somewhat sure climate	0.52%	2.00%	3.41%	0%	0%	0%

change is not happening						
I'm not all that sure climate change is not happening	0%	0.67%	1.14%	0%	0%	0%
I don't know	3.14%	2.67%	3.41%	0%	2.78%	%

**Table 3. Assuming climate change is climate happening do you think it is...**

	PRE SURVEY	POST SURVEY
Caused mostly by human activities	67.02%	70.00%
Caused mostly by natural changes in the environment	26.70%	18.00%
Other	4.19%	8%
None of the above because climate change isn't happening	2.09%	6.67%

**Table 4. Student's Personal Opinions on Climate Change: How worried are you about climate change?**

	PRE SURVEY	POST SURVEY
Very worried	10.99%	24.00%
Somewhat worried	54.97%	49.33%
Not very worried	26.18%	18.00%
Not at all worried	7.85%	8.67%

**Table 5. How much do you think climate change will harm you personally?**

	PRE SURVEY	POST SURVEY
Not at all	9.42%	11.33%

Only a little	29.32%	20.67%
A moderate amount	37.70%	36.00%
A great deal	9.95%	18.67%
I don't know	13.61%	13.33%

**Table 6. How much had you thought about climate change before today?**

	PRE SURVEY	POST SURVEY
Not at all	14.66%	12.00%
A little	39.79%	26.67%
Some	37.17%	42.00%
A lot	8.38%	19.33%

**Table 7. How many of your friends share your views on climate change?**

	PRE SURVEY	POST SURVEY
None	22.51%	10.00%
A few	37.70%	36.67%
Some	23.04%	20.67%
Most	12.57%	26.67%
All	4.19%	6.00%

**Table 8. Student's Personal Opinions on Climate Change**

	PRE SURVEY	POST SURVEY	POST SURVEY Central	POST SURVEY Northeast	POST SURVEY South	POST SURVEY W. Central
Climate change isn't happening	3.14%	5.33%	5.56%	6.25%	2.78%	10%
Humans can't reduce climate change	12.57%	9.33%	9.26%	12.5%	5.56%	0%

Humans could reduce climate change, but people aren't willing to change	34.55%	40.00%	42.59%	31.25%	41.67%	40%
Humans could reduce climate change, but it is unclear at this point whether we will do what's needed	46.07%	39.33%	40.74%	43.75%	36.11%	50%
Humans can reduce climate change, and we are going to do so successfully	3.55%	6.00%	1.85%	6.25%	13.89%	0%

**Table 9. Do you think we should be doing more or less to address climate change?**

	PRE SURVEY (N = 40)	POST SURVEY (N = 34)
Much less	2.62%	4.67%
Less	3.14%	3.33%
Currently doing the right amount	16.75%	9.33%
More	52.88%	53.33%
Much more	24.61%	29.33%

**Table 10. Do you think climate change should be a low, medium, or very high priority for the President and Congress?**

	PRE SURVEY (N = 40)	POST SURVEY (N = 34)
Low	13.09%	11.33%
Medium	47.12%	36.673%
High	31.94%	32.67%
Very High	7.85%	19.33%

**Table 11. The United States should reduce its greenhouse gas emissions...**

	PRE SURVEY (N = 40)	POST SURVEY (N = 34)
Regardless of what other countries do	60.21%	70.00%
Only if other industrialized countries reduce their emissions	7.33%	2.67%
Only if other industrialized countries and developing countries reduce their emissions	6.81%	6.67%
The US should not reduce its emissions	2.09%	6.00%
I don't know	23.56	14.67%

**Table 12. Which comes closest to your view?**

	PRE SURVEY (N = 40)	POST SURVEY (N = 34)
Most scientists think climate change is happening	52.25%	58.22%
Most scientists think climate change is not happening	4.42%	3.42%
There is a lot of disagreement about whether or not climate change is happening	27.07%	32.19%
I don't know	13.26%	6.16%

## Student Climate Literacy

**Table 13. Differences from pre and post in climate literacy**

	<u>% selecting correct/affirmative answer</u>	
	Pre	Post
Have you heard of the greenhouse effect?	78.45%	92.47%
The greenhouse effect refers to...	53.04%	73.29%
By studying ice cores scientists...	55.80%	73.29%
What is the main gas produced by burning fossil fuels?	69.61%	84.25%
Which of the following naturally takes carbon dioxide out of the atmosphere	76.24%	84.93%
Which of the following is a source of methane	38.67%	63.01%
The amount of carbon dioxide in the atmosphere today is...	51.38%	80.14%

## Student Behavior Change

In the pre-survey students were asked what makes it difficult to reduce their carbon footprint.

- 35% responding that habits and/or convenience of changing the things they do made it difficult.
- 20% reported that the distance they lived from school or places they needed made it difficult.
- 13% reported their need to use technology or electricity in general made it difficult
- 7% reported that societal norms prevented themselves or those around them from reducing their footprint
- 6% said they didn't know how
- 5% reported that connecting their actions to the impact they make made it difficult

(Not all answers are reported based on significance)

**Table 14. Differences from pre and post in behavior**

<u>Yesterday did you...</u>	<u>% selecting affirmative answer</u>	
	Pre	Post
Carry a reusable water bottle to school?	63.84%	58.33%
Unplug gadgets and electronics when not using them?	51.41%	59.03%
Shower less than 5 minutes?	33.90%	30.56%

Turn off the lights when leaving a room for more than 10 minutes?	85.31%	82.64%
Recycle paper, glass, cans and/or plastics?	83.05%	75.69%
Eat locally produced food?	42.37%	50%
Bike, skateboard or walk to school?	10.17%	14.58%
Talk to your parents about climate change?	4.52%	7.64%
Talk to your friends about climate change?	7.34%	12.5%

**Table 15. CHECK ALL of the following that have influenced your actions to reduce your carbon footprint in the questions above (check ALL that apply)**

	PRE SURVEY (N = 40)	POST SURVEY (N = 34)
My friends	26.55%	33.33%
My teacher	71.19%	85.42%
My parents	38.42%	34.03%
Afterschool club/program leader	35.03%	38.19%
Camp counselor	5.65%	10.42%
The news	61.58%	55.56%
Movies and tv shows	32.77%	27.78%
I care deeply about climate change	24.29%	33.33%

## Student Self Efficacy



## Student Responses for Favorite Thing with YES! Team 2015-2016

In the post-survey students were asked what was the favorite thing they did with their YES! Team. Of those that responded (n=152):

- 30% reported projects they had worked on including greenhouses and planning events.
- 16% reported attending the summits or workshops.
- 13% reported going on field trips.
- 12.5% reported some activity that focused on changing school culture such as recycling, composting or meeting with the principal.
- 9% reported teaching younger kids about the earth.
- 9% reported spending time with peers.
- 3% reported learning about climate change
- 3% reported doing community outreach
- 3% reported participating in games

## DISCUSSION

### Student Personal Opinions

Survey results show an increase in awareness of, concern about, as well as the

understanding that climate change impacts are local and personal. Students also reported we needed to do more about climate change through a variety of means, including action by the President or congress, greenhouse gas reductions.

When asked questions related to the science of climate change, respondents showed an increased understanding in the mechanism of the greenhouse effect and other related climate literacy questions.

### Behavior Change and Self Efficacy

Students did not indicate a change in their individual pro-environmental behavior and overall showed a trend towards being less individual pro-environmental in their behavior, except as it relates to energy efficiency and talking about climate change with their friends and parents. For example pre survey results showed 63.84% bringing a water bottle to school with 58.33% reporting in the post. Students reported that making a change to their current lifestyle to mitigate climate change was difficult because of habits or societal norms.

Teachers and after school program leaders were reported as big influencers in reduction of carbon footprint which could be tied to YES! program leaders. Students showed an increased in their confidence to explain climate change, but a decrease in their confidence to reduce their school's carbon footprint.

## **CONCLUSION**

Survey results suggest that overall the climate literacy programming offered by Climate Generation did result in an increased understanding of climate change and confidence and to talk about it with others. If YEAS! has a goal of student's making the connection between climate change and their personal and collective action, future programming should be built on making a more solid connection between the two, as well as developing student confidence to implement action projects. The indication that teachers and afterschool leaders are key influencers demonstrates a role that YES! Can play. Additionally, student's enjoyments of project based learning shows an opportunity for projects to play a role in making these connections. Finally, the barriers to carbon footprint reduction survey respondents indicated show a lack of understanding of individual and collective actions that can be taken and demonstrate the potential for redefining and reframing what carbon footprint reduction can look like for students in their local settings.



Appendix:

**YES! Favorite Things (all respondents)**

Taught young kids about the earth.

Teaching kids

Made dirt cups for earth week and taught the elementary kids

eat worm cups!

Fundraising and projects and being able to coming together as a team and do things to better our community

Teach the kindergarten

Helped to recycle more in our school

the trip to sant johns

Field trip

Being with friends

Participating in our community events and educating them on composting

Our Earth day projects and teaching the elementary on climate change!

My favorite thing I did with YES! Team this year was going on the Winter Summit. That was a great experience at Gusties to learn a lot and I am excited to go back next year.

I always enjoy going into the elementary classrooms during earth week and teaching them about our program and doing activities with them.

Talking to 4th graders

Present bike safety to fourth graders at PME

Being able to educate others on the importance of the environment, and helping reduce climate change. I hope this can inspire others to work to save our planet.

going to the St. Johns workshop

Working together with my team and presenting to 4th graders about bike safety.

Present to PME about bike safety

Took a field trip

Working with others

Planning about how to save the earth.

Games

Plan the greenhouse

My favorite thing was the platypus activity

we got to go to the presentation at St. John's

The fall summit

No

Talking with our superintendent about putting up a greenhouse

We went to a workshop and got to miss school.

When we learned more about climate change and went to the fall summit.

Helping my friends

I liked planning out our greenhouse.

I liked the Energy Summit at St. John's

Not sur

We worked togethrr

I really enjoyed researching about some other places that have had successful greenhouses.

I liked marked the spots.

Nothing yet it's just planning

Raked Leaves

Rake leaves

The activity

Going on trips for ideas #cherryberry

The Greenhouse!

5k

no

Getting together during WIN and talking about how to use less energy/power. We were planning to go to the other school and talk about the use of energy and solar power and how to use less of it.

Had a gathering at the school and had food, played games, and talked about future YES

projects.

The Meetings

the fluid power event

Going to the fall summit.

The Fall Summit.

Go on fun trips.

st. johns

the school trips and learning more about our enviroment

being in 8th grade yes we dont do as much as the older kids but we are trying to start other fun activities to do in school.

We made smoothies and sold them to raise money for YES!

The Fall Summit

outside

GO on trips

Go Ice fishing

Crane Meadows project

Just having fun with the team and getting to know everyone.

Meetings

Changing the earth to be more green ansd to make the world a better place

Gonna do face painting!:)

Just being together and having fun

Go to meetings

FIFA

Travel to other schools and see what they are doing

Went to a green house

Fifa

FIFA

solar energy

Build projects with the team.

Communication and helping each other out.

build our projects

We made trombe walls in order to store energy from the sun in water and use it to regulate room temperatures.

Build a solar pop can heater that looked good and worked good.

Building projects.

Work together

Having a team to work with.

Building new projects that i never heard of. Learning on how to make responsibilities and accomplish them

Fall rally

Traveled to various greenhouses and spoke with conservationists

Making a video

We created a lesson plan to teach others the importance of plants.

Learn that we could be a part of installing a new hydration station in out school

Help teach others how to help to environment

Talk to the principle about our decisions.

Deciding fun ways to reduce our negative impact on the environment in our community.

worked together as a group

We got to talk to the principle about getting a new hydration station in our school, and talking about fundraising ideas like selling water bottles to raise the money, and promote usage.

Learn about climate change and making a difference.

Making part of a kahoot.

I liked meeting with the principal and head maintenance staff to talk about a location for a hydration station.

I enjoyed going to St. John's with the class.

Do a project that benefits the school.

Making lesson plans to raise awareness of climate change to kids in our school.

Bike Day!

We had a Yes Week project at our middle school that my class organized.

Organizing events and working with friends

Helping to teach kids about the earth

Travel to St. John's. I also like participating the YES! Project.

Creating the final product

Our bike project

Creating a lesson on our topic.

Brainstormed ideas for our projects

Well I liked just working with a group on a long term activity. It made the project feel like we were running a business

Black out

Going to Saint Johns University and learning better things to use to create electricity!  
And going to New London Spicer High School to see what their YES Team has been doing and and touring their greenhouse and checking out their lunch program!

greenhouse project

Getting more people involved in climate change

Meeting about how to introduce recycling in the school

SCIENCE STUFF

Going on trips.

tested how clean the water is

greenhouse

bonding

learn

take samples

Everything

We created a water quality report for a river near our school for the town of Warba.

I do t remember

Build recycling bins

Grassroots Gathering!

Helping to make a difference.

Summit at St. John's

The workshops we should do more it really helps you figure out what what is really good to the environment.

Meet new people

We will be hosting a Fun Run/Walk for the community that promotes YES and makes people aware of what they can do for the world and community.

My favorite was the outdoor retreat at the college(St. John's?) on September 30th.

Going and learning at workshops

We bought reusable bowls for the soul line in our cafeteria. No more styrofoam!

Probably when we went to the fall summit and planned out our projects for the year.

fall rally thing

Going to the outdoor party

School garden, fresh food for students

Recycling

Our recycling bins we made

Go to the dump