Open World Learning Community
Algebra 1

Guiding Question:
"Does the budget of the state of Minnesota
match the values of the state?"

EL Education

Contributing to a Better World

#WeAreCrew

Open World
Learning

Policymakers,

Thank you in advance for taking the time to read the work that the students in the Algebra 1 classes of Open World Learning Community have prepared for you.

This is the fourth year of the project that we call the "Senate Expedition" at OWL because the Capitol Building was under construction 4 years ago and we presented in the new Senate Building. The name is the same but the quality of the projects has increased over the years as the topics have continued to have a ton of variety. In this book you will find analyses that look at education spending, air quality, moose population, crime statistics, recidivism, and graduation rates to name a few.

Our guiding question is "Does the budget of the state of Minnesota match the values of the state of Minnesota" and I was pleased to give last year's book to Governor Walz who has reinforced this idea by stating that "a budget is both a fiscal document and a moral document that reflects the state's priorities and values." I couldn't agree more.

The mathematical underpinnings of this endeavor MN Standard 8.4.1.1 "Interpret data using scatterplots and approximate lines of best fit. Use lines of best fit to draw conclusions about data" and I hope that you can see how the OWL Algebra 1 class fulfills this requirement using real-world data in authentic ways. The project also incorporates W.8.7.1.1 "Write arguments to support claims with clear reasons and relevant evidence."

I hope that you will listen with open ears, hearts, and minds to the proposals of these earnest young people. They care a lot about these topics and while they may not be masters of the topics they are presenting about, they have passion. Furthermore, I have taught over 200 students in St. Paul about the process of petitioning their government on topics they are concerned about and I expect that you will be seeing them partake in their democracy at all levels for years to come.

Thank you,

Tom Totushek

Mathematics Teacher, NBCT AYA Mathematics

Open World Learning Community

Tom.Totushek@StPaul.k12.mn.us, on Twitter @TheMathProphet

Names and Districts by Group Number

Name	District	Group
Aniyah H	66B	Group 1
Hazel W	66B	Group 1
MJ W	66A	Group 1
Will F	66A	Group 1
Daniela A	67A	Group 2
Jonas R	65B	Group 2
Emilia H	65B	Group 2
Jackson S	64B	Group 3
Leland E	64B	Group 3
Otis K	67A	Group 3
Owen V	65B	Group 3
Gabrielle H	67A	Group 4
Jude W	66B	Group 4
Maleah Y	66B	Group 4
Cardell O	67B	Group 4
Jaime V	67A	Group 5
Joshua O	65B	Group 5
Kian D	65B	Group 5
Cyanna R	67A	Group 6
Dani B	65B	Group 6
Demare G	67A	Group 6
Samantha O	65B	Group 6
Eli B	64B	Group 7
Leonardo G	67A	Group 7
Oliver P	65A	Group 7
William P	67A	Group 7
Gabe K	67A	Group 8
Lae Doh W	52A	Group 8
Sebastian S	65A	Group 8
Jaielle G	65B	Group 9
Lalayia F	66A	Group 9
Sofia M	65B	Group 9
Emi S	67A	Group 9

Name	District	Group
Jonathan R	67B	Group 10
Keng V	53A	Group 10
Moe R	67A	Group 10
Aras W	67A	Group 10
Calvin D	66B	Group 11
Leo M	65A	Group 11
Noah K	67B	Group 11
Ulric C	67A	Group 11
Anders M	65B	Group 12
Ben AK	64B	Group 12
Ted D	65B	Group 12
Liam S	67A	Group 12
Beatrice L	65B	Group 13
Frankie W	64A	Group 13
Lucy G	65A	Group 13
Sarah W	65A	Group 13
Mi Paw	66B	Group 14
Samuel P	66A	Group 14
Sophia W	67B	Group 14
Lydia G	65A	Group 14
Calvin C	65B	Group 15
Mikko I	65B	Group 15
Aidan J	64A	Group 17
Henry B	64B	Group 17
Lucas R	65A	Group 17
Hiroko Z	66B	Group 18
Oliver J	67B	Group 18
Debora T	64B	Group 19
Krista H	65A	Group 19
Lucy A	65A	Group 19
Natasha K	65B	Group 19

Names and Group Number by District

Name	District	Group
Lae Doh W	52A	Group 8
Keng V	53A	Group 10
Frankie W	64A	Group 13
Aidan J	64A	Group 17
Jackson S	64B	Group 3
Leland E	64B	Group 3
Eli B	64B	Group 7
Ben AK	64B	Group 12
Henry B	64B	Group 17
Debora T	64B	Group 19
Oliver P	65A	Group 7
Sebastian S	65A	Group 8
Leo M	65A	Group 11
Lucy G	65A	Group 13
Sarah W	65A	Group 13
Lydia G	65A	Group 14
Lucas R	65A	Group 17
Krista H	65A	Group 19
Lucy A	65A	Group 19
Jonas R	65B	Group 2
Emilia H	65B	Group 2
Owen V	65B	Group 3
Joshua O	65B	Group 5
Kian D	65B	Group 5
Dani B	65B	Group 6
Samantha O	65B	Group 6
Jaielle G	65B	Group 9
Sofia M	65B	Group 9
Anders M	65B	Group 12
Ted D	65B	Group 12
Beatrice L	65B	Group 13
Calvin C	65B	Group 15
Mikko I	65B	Group 15
Natasha K	65B	Group 19

Name	District	Group
MJ W	66A	Group 1
Will F	66A	Group 1
Lalayia F	66A	Group 9
Samuel P	66A	Group 14
Aniyah H	66B	Group 1
Hazel W	66B	Group 1
Jude W	66B	Group 4
Maleah Y	66B	Group 4
Calvin D	66B	Group 11
Mi Paw	66B	Group 14
Hiroko Z	66B	Group 18
Daniela A	67A	Group 2
Otis K	67A	Group 3
Gabrielle H	67A	Group 4
Jaime V	67A	Group 5
Cyanna R	67A	Group 6
Demare G	67A	Group 6
Leonardo G	67A	Group 7
William P	67A	Group 7
Gabe K	67A	Group 8
Emi S	67A	Group 9
Moe R	67A	Group 10
Aras W	67A	Group 10
Ulric C	67A	Group 11
Liam S	67A	Group 12
Cardell O	67B	Group 4
Jonathan R	67B	Group 10
Noah K	67B	Group 11
Sophia W	67B	Group 14
Oliver J	67B	Group 18

Group 1

The Relationship Between Math Proficiency and State Spending on Education

Hazel W. (66B), Aniyah H. (66B), MJ W. (66A), Will F. (66A)

April is a math tutor. You'd think she'd been good at math from an early age, with a story that goes something along the lines of 'a math prodigy at a young age, she assisted all her friends with their math, leading her to eventually become a tutor.' But that's not her story at all. Instead, it's a story of struggling with math to such a point that she was about to fail high school. When she told her story, she said about her math skills, "I was terrible. So terrible, in fact, that I was in danger of not graduating high school." With a lot of help and tutoring, she was able to pull through. But this needs to change.
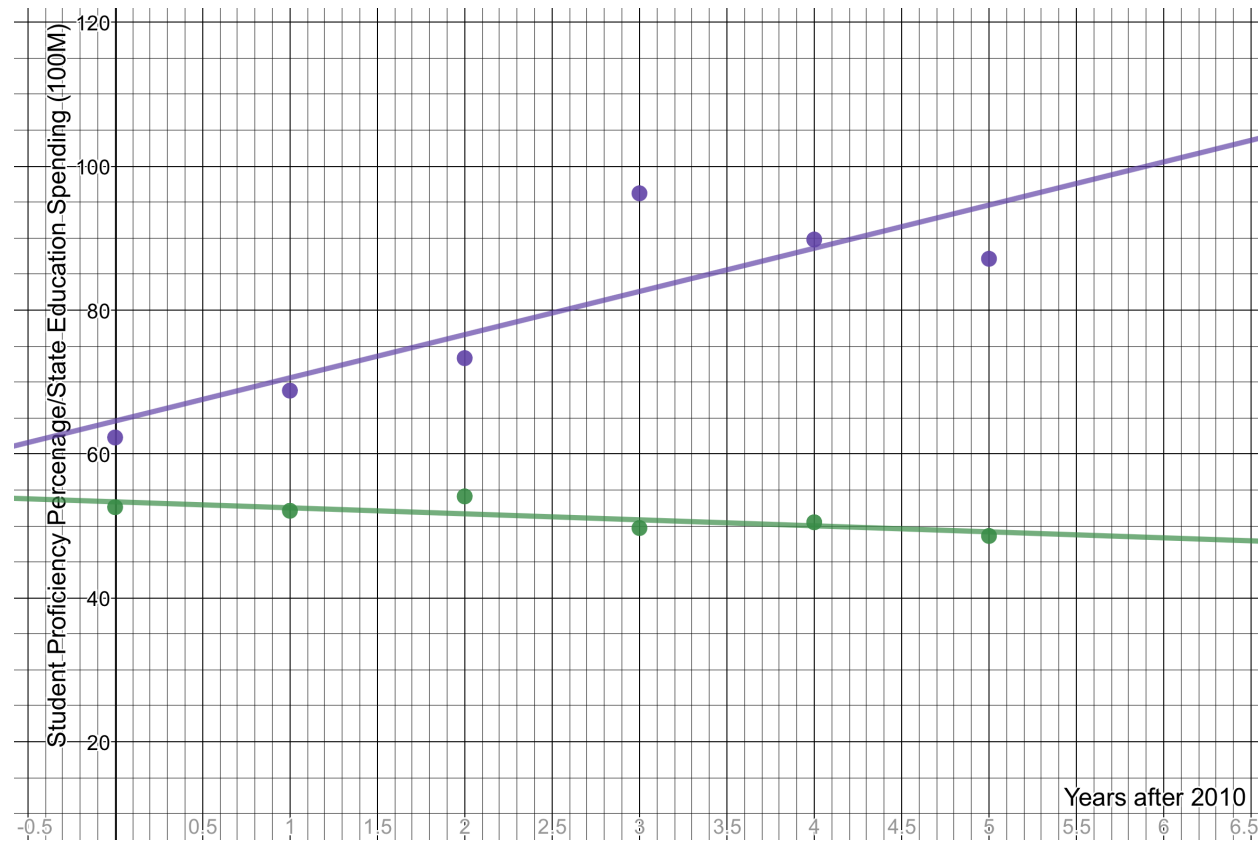
With math proficiency at the level, it is, there are more stories like April's than not. This means that there is a need for better education policies, because despite high government education spending, the math proficiency is going down. Based on expected growth levels, the data we found on math proficiency show a clear downward trend. In 2019, if this trend is accurate, we should have around 45% math proficiency. By 2025, we will have around 40% math proficiency. This is insufficient, and it will lead to students not getting into good colleges, and then not being able to get jobs.

The expected growth levels, according to the Minnesota Management and Budget website, are determined based on assessment results. They are based on average student improvement for students with similar scores statewide. With this data and the other data collected, we know that the state spending is going up (adjusted for inflation in 2019 dollars), and the percentage of students at expected growth levels in math is going down.

Right now, Governor Walz is making a lot of promises about education, the new budget, and what is going to be done. But although they are all worthy goals, a big priority should be ensuring that students are passing their classes and learning everything they need to be. We can't improve our schools if we are busy worrying about whether their students are passing and are going to continue to pass. We need to figure out how to fix this problem, so that instead of focusing on ensuring MN students are learning the things they need to, we can focus on ensuring that they are learning in schools that are the best that they can be.

Year	Percent of Students at or Above Expected Growth Levels in Math	State Spending on Education Per Year (adjusted for inflation in 2019 dollars)
2010	52.6%	$6,228,798,821.66
2011	52.1%	$6,880,083,612.07
2012	54.1%	$7,331,719,095.66
2013	49.7%	$9,622,872,925.05
2014	50.5%	$8,980,442,503.65
2015	48.6%	$8,712,894,638.81

"Spending is going up (adjusted for inflation in 2019 dollars), and the percentages of students at expected growth levels in math is going down."

Group 2

State Transportation Spending vs
Public Transportation Ridership

Emilia (65B), Daniela (67A), and Jonas (65B)

In mid February, a female student at our school was riding a public bus alone. Their were many people on the bus, and she was minding her business, when a group of two or three grown men started verbally harassing her. She put her earphones in to try and dissuade them, but they kept on yelling at her. They even went as far as to get off at her stop. No one helped her, even though she was 13 and they were grown men twice her age. Despite this, she still uses the public bus everyday. Why? Because she needs to.
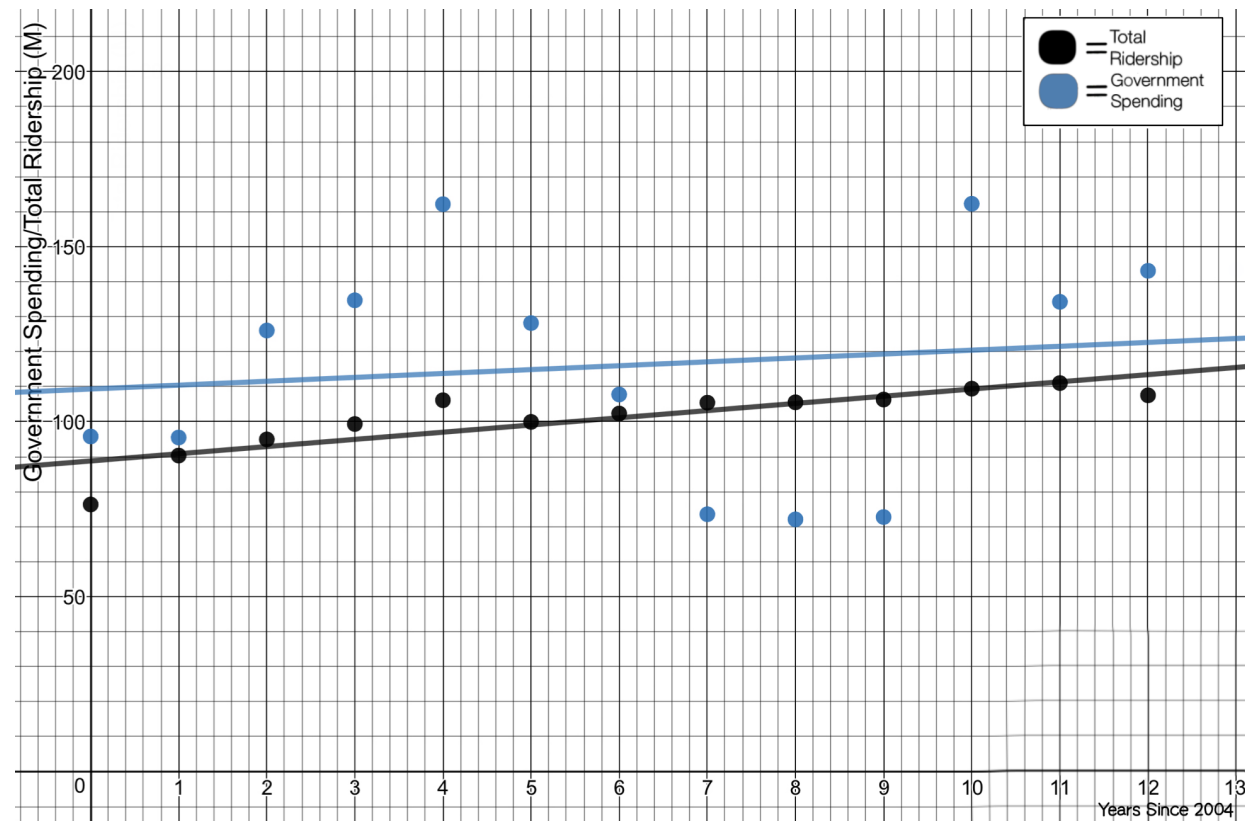
Many people have no choice about how they get around. Public transportation isn't a pleasantry for them, it's a necessity. This is why we need to put much more effort into public transportation. As you can see by our graph, the number of people riding public transportation is steadily rising, but the spending for public transportation has been generally all over the place. Clearly more and more people have been incorporating public transportation into their daily routine. This is very good, but in order to sustain this growth, Minnesota needs to consistently keep up the budget. Public busses all over the country have saved 4.2 billion gallons of gasoline each year. We need to change the fact that about 1 in 5 women are sexually assaulted in their lifetimes, and 6 in 10 are harassed on public transport. Still many thousands still don't have any other way to get around.

We need you to help make sure that the public buses and other transportation options are safe, clean and easy to ride on. We need to make sure that nobody feels uncomfortable or unsafe on the only option they have.

Year	Rides taken on public transportation (in millions)	Government spending on public transportation (in millions)
2004	76.3	95.7
2005	90.3	95.4
2006	94.9	126.0
2007	99.3	134.6
2008	106.1	162.1
2009	99.9	128.1
2010	102.3	107.7
2011	105.4	73.5
2012	105.5	72.0
2013	106.3	72.7
2014	109.7	162.2
2015	111.0	134.2
2016	107.5	143.1

According to the data, public ridership is always upward. We need to spend more on public transportation to help people who don't have any other choices.

Group 3

Minnesota Air Quality vs MNPCA Spending on Air

Jackson.S (64B), Leland E (64B), Otis.K (67A), and Owen.V (65B)

We have gotten our information from the pollution control agency website. As you can see in our graph we have lined up air quality alerts and spending on the Y axis, and the past years on the X axis. As you can see the air quality has been getting better through the years, and is proportional to state spending. The lines on our graph reflect that the positive changes in air quality are directly related to the amount of state funding for the pollution control agency.

Outside on a hot summer day. You get a notification on your phone. "Air quality warning twin cities." You get home, but your asthma is acting up. You can't catch your breath and you start coughing. You reach for your inhaler, but it isn't doing anything. You have to go to the hospital! Imagine this happening to you. People with respiratory conditions are at an increased risk because of air pollution in Minnesota.

We believe that the state of Minnesota could be spending more money on figuring out a way to purify our air and restore it. We also think that some state regulations should be applied. Companies that produce more carbon dioxide should pay more in taxes to discourage them to produce card on dioxide.
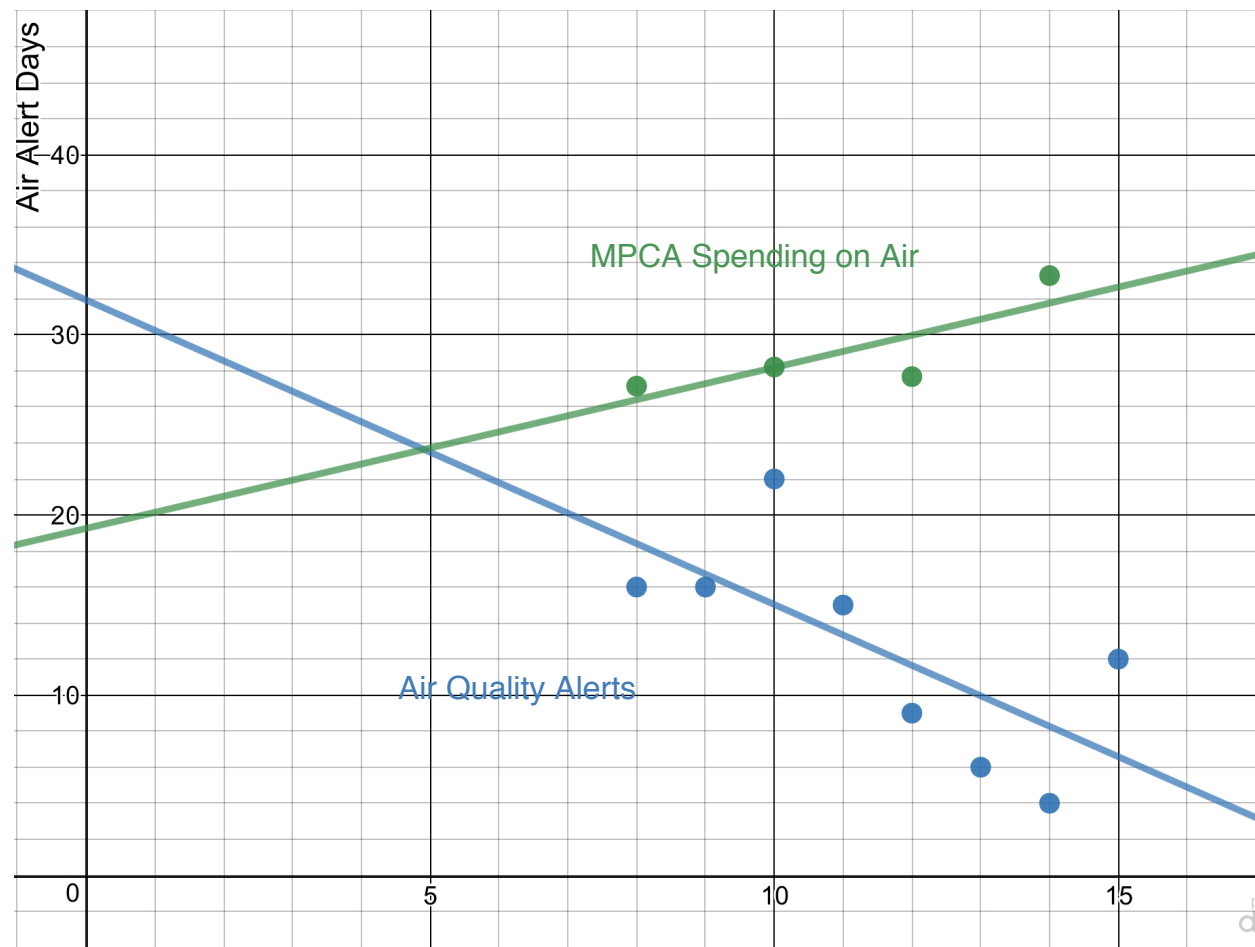
	Year	Air Quality Days	MNPCA Spending on Air (Adj)
8	2008	16	27,155,432.11
9	2009	16	
10	2010	22	28,211,507.14
11	2011	15	
12	2012	9	27,679,512
13	2013	6	
14	2014	4	33,287,129
15	2015	12	
		Source: Minnesota Pollution Control Agency	

Minnesota has improved its air quality. In 2010, it had 22 days of air quality alerts that's the highest it's ever gotten.
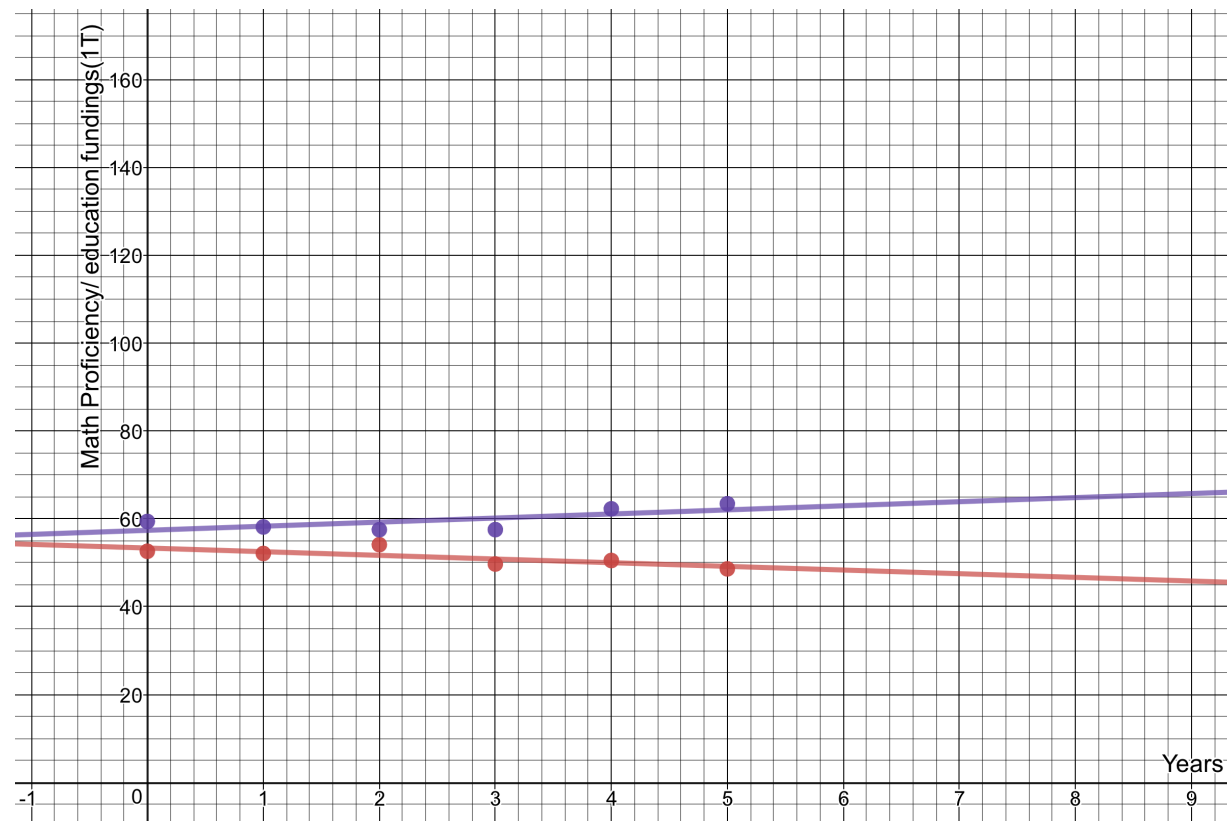
Group 4

Math Proficiency in 8th Grade vs State Education Spending

Maleah Y (66B), Jude W (66B), Cardell O (67B),

and Gabby H (67A)

Chad Michael an 8th grade student who goes to open world learning community, an EL school. Chad Is struggling with his proficiency in math, Chad was then able to get extra help with math and with preparation for the MCA. After a few weeks of getting extra help Chad was able to meet proficiency on the MCA if we are able to get more funding to be set aside for extra help for students who struggle in math, proficiency percent in math would be increased.

We looked at the data from the Minnesota dashboard the data we found wasn't as good. The math proficiency in Minnesota is getting lower throughout the years since 2010 to 2015. The goal we have for math is to get it as good as reading proficiency. The amount of money we are spending for math is lower than it is for reading. So our goal is if we spend the same amount of money like we do for reading we will be getting better results for math.

	% Proficient in Math	Adj 2019 PPA
2010	52.60%	$5,939.87
2011	52.10%	$5,814.30
2012	54.10%	$5,751.46
2013	49.70%	$5,753.07
2014	50.50%	$6,226.08
2015	48.60%	$6,343.48

Math education funding is helpful for students who struggle because having education funding can help hire people who help students understand the topic.

Group 5
Households with High Housing Burden vs MHFA Spending
Kian D (65B), Joshua O (65B), and Jaime V (67A)

	% with high housing burden	Adjusted to 2019 Dollars
2005	31%	61,136,069.43
2006	33%	72,645,075.22
2007	33%	42,955,900.69
2008	34%	105,067,762.45
2009	33%	59,984,092.28
2010	33%	50,575,538.25
2011	33%	53,548,328.96
2012	30%	48,215,496.47
2013	28%	55,297,893.76
2014	28%	84,557,900.34

Access to affordable housing is a key component of a thriving economy. Housing values are increasing and homeowners are taking chances with alternative financing methods.

Group 6

Violent Crime Rate in MN vs

Spending on Public Safety and Corrections

Demare G (67A), Cyanna R-S (67A), Dani B (65B), and Sami O. (65B)

Two kids were walking back from a local place called Icy Cup when someone ran past them and nearly knocked one of the girls over. The man was running because he was being chased by the police. After the girls witnessed this they got worried and ran to the closest house which was one of the girls house, later they were going to walk back to the other girls house. One of the girls phone was dead and did not see a texts from their mom telling them not to go home, so the girls started walking and when they were at her house the man who was being chased had a gun pointing at the cops and the cops had their guns pointed at the man. The neighbors were yelling at the girls to get inside but the door was locked so the were banging on the door when finally one of the girls mom opened the door and they came crashing in.

We got our data from the disastercenter.com. What we have learned from our graph is that the violent crime rate has been decreasing and that public safety spending has been increasing. Since the public safety spending has increased there has been less violent crimes due to the contributions

We advocate to keep investing in public safety spending so that our community can stay safe.

Year	Year Adj	Violent Crime	Public Safety/Correction Adj 2019
2000	0	281	575,487.05
2001	1	264	684,173.91
2002	2	267	618,350.51
2003	3	263	632,442.99
2004	4	270	586,222.90
2005	5	293	612,017.67
2006	6	312	613,990.81
2007	7	289	681,075.85
2008	8	263	674,932.92
2009	9	245	718,425.14
2010	10	236	718,425.14
2011	11	231	671,263.97
2012	12	231	606,840.10
2013	13	223	636,115.52
2014	14	229	623,226.34
2015	15	243	680,410.26

The Violent Crime rate is dropping statewide, to keep this number decreasing we advocate that more money goes into public safety spending.
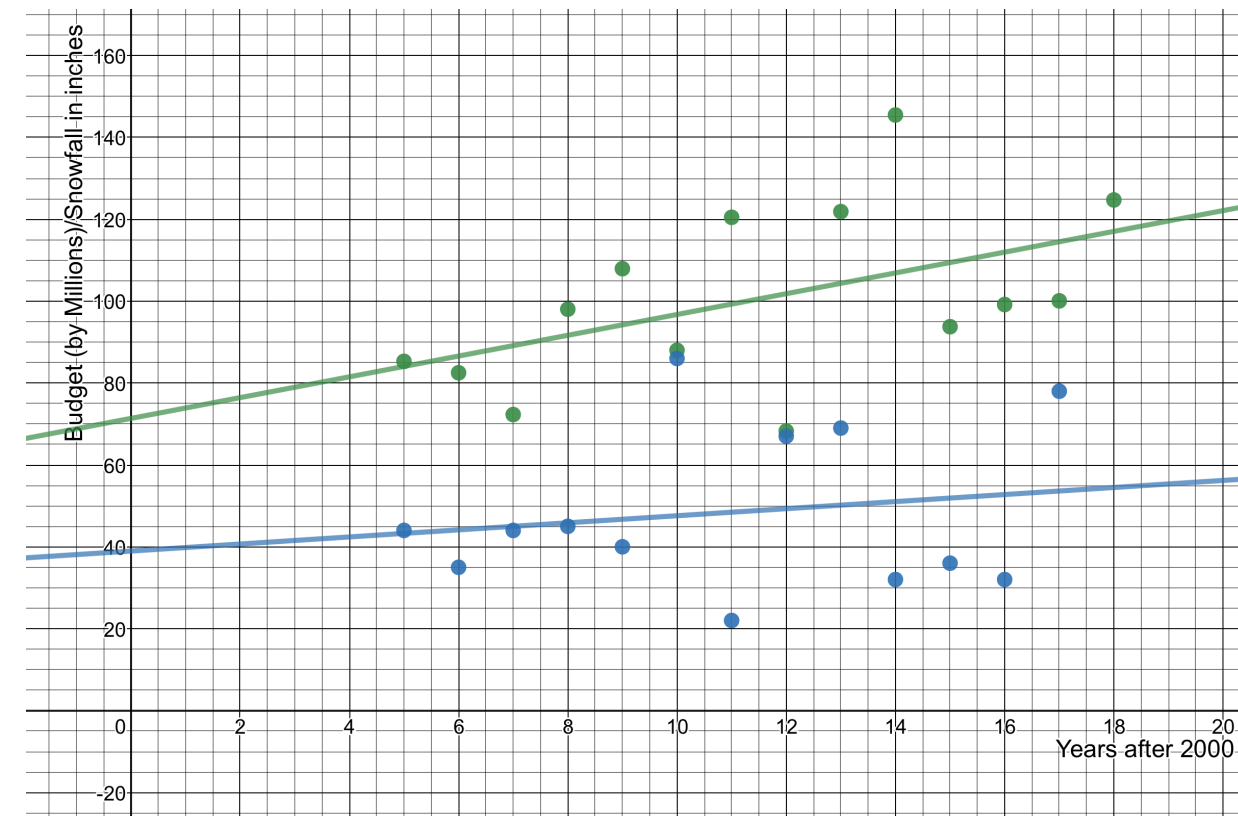
Group 7

State Transportation Spending vs Snowfall:
a Story of Poor Snow & Ice Removal

Eli B (64B), Oliver P (64A), Leo G (67A), and William P (67A)

Have you ever been driving in the winter desperate to get home? It is a complete whiteout, and the roads are covered in snow. Even though it has been snowing for a while, you can see that the response time of the plows was slow. Also, there's a lack of quality plowing because the snow that should have been scraped off by the previously passing plows has been packed down by passing cars. Your scared because you. Are slide to wait the storm out but because the roads are so snowy that if your driving you will slide of the road. Well that should not be an issue and our group wants to help fix.

We got our data from the MnDOT and the DNR. In the graph you can see a lot of inconsistencies in the budget and snow, we can't change anything about the snow, but have inconsistencies this large, it is a issue. If this continues then we will either have lots of snow and not enough money, or lots of money, but not a lot of snow. This wastes money and we want to change that.

As climate change continues in Minnesota will see more snow. Having faster response times (getting plows and salt trucks out) to snow on highways will help keep the snow at bay while drivers have time to get home and off the roads. It will also decrease the number of injuries related to poor snow and ice removal. We could also strategically place heating elements in roads that already need repairs we could also make drains that connect to storm drains directly at bottom of hill so the water from the snow that's melted doesn't turn in to ice at the bottoms of hills. Those drain would look a bit like cattle catchers. But to do all this the transportation department will need extra funding to complete these tasks but it will be worth it in the end. In conclusion we think it is smart to invest in the future, what about you?

Years	Budget (Millions)	Yearly Snowfall (Inches)
2005	85.3	44
2006	82.5	35
2007	72.3	44
2008	98	45
2009	107.9	40
2010	88	86
2011	120.5	22
2012	68.3	67
2013	121.9	69
2014	145.5	32
2015	93.8	36
2016	99.2	32
2017	100.1	78
2018	124.7	N/A

Our group believes that we need to ensure more, and steady, transportation funding in order to keep Minnesota's drivers safe.

Group 8

Homelessness in Minnesota vs MFIP Allocation

Sebastian S (67A), Lae Doh W (52A), Gabe K (67A)
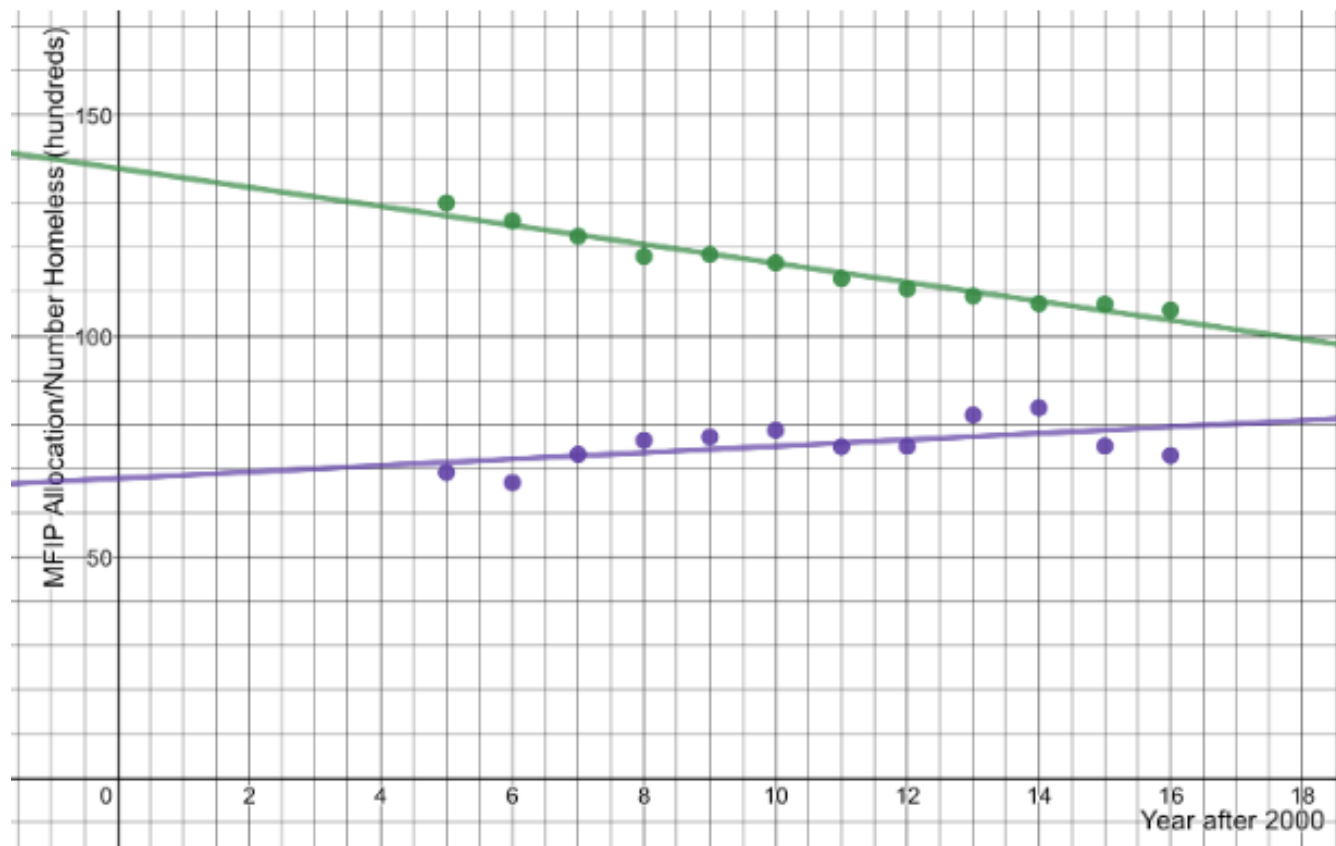
Year (after 2000)	MFIP (adj 2019)	Number Of Homeless (hundreds)
5	$130.16	69.18
6	$126.09	66.85
7	$122.60	73.23
8	$118.07	76.44
9	$118.49	77.18
10	$116.58	78.69
11	$113.01	75.68
12	$110.72	74.95
13	$109.12	73.06
14	$107.38	82.14
15	$107.25	83.77
16	$105.91	73.04

Homelessness in increasing statewide and the MFIP allocation has fallen in 2019 dollars every year. The causes of homelessness are many, but we should do more to help.

Group 9

Recidivism and State Spending on Corrections

Jaielle G. (65B), Sofia M. (65B), Lalayia F. (66A), and Emi S. (67A)

Sean Pica entered prison as a 9th grader who was hired to kill an abusive father and earned a 24-year sentence. He soon felt what many other felons feel, he felt there was no hope to have a life and he thought low of himself. After a guard told him he had the most education and asked if he could help other inmates he started to teach them to read by reading them children's books and helping them write letters to family and friends. He loved it, when he was let out he continued his education earning 400 credits from Nyack College and two master's degrees from New York Theological Seminary and Hunter College. Even after spending 24 years there he went back to the prison and helped the felons get an education with online colleges. He also helped them get back into society with a steady paying job, with giving them clothes,

As the state spending on recidivism get higher the percent of felons being convicted within 3 years of their release gets lower. This shows that spending more on corrections with the goal of supporting a inmate return to society will prevent them reoffending. We got our data from Jim King from Minnesota Management and Budget and the Minnesota Dashboard.

In various interviews with Sean Pica from Crime Watch Daily and Freethink Sean said he had helped inmates read when he was incarcerated, so when he got out he got his education and decided to use it to educate inmates. Once the inmates graduate and are released, they help them find a job and suitable attire.

| Year	Recidivism Rate	State Spending per year (Adjusted for inflation in 2019 dollars)
2005	20%	490,054.08
2006	20%	508,318.26
2007	20%	533,772.46
2008	20%	534,821.51
2009	19%	564,760.76
2010	19%	485,961.86
2011	19%	533,776.85
2012	18%	491,887.08
2013	18%	511,712.51
2014	19%	514,896.06
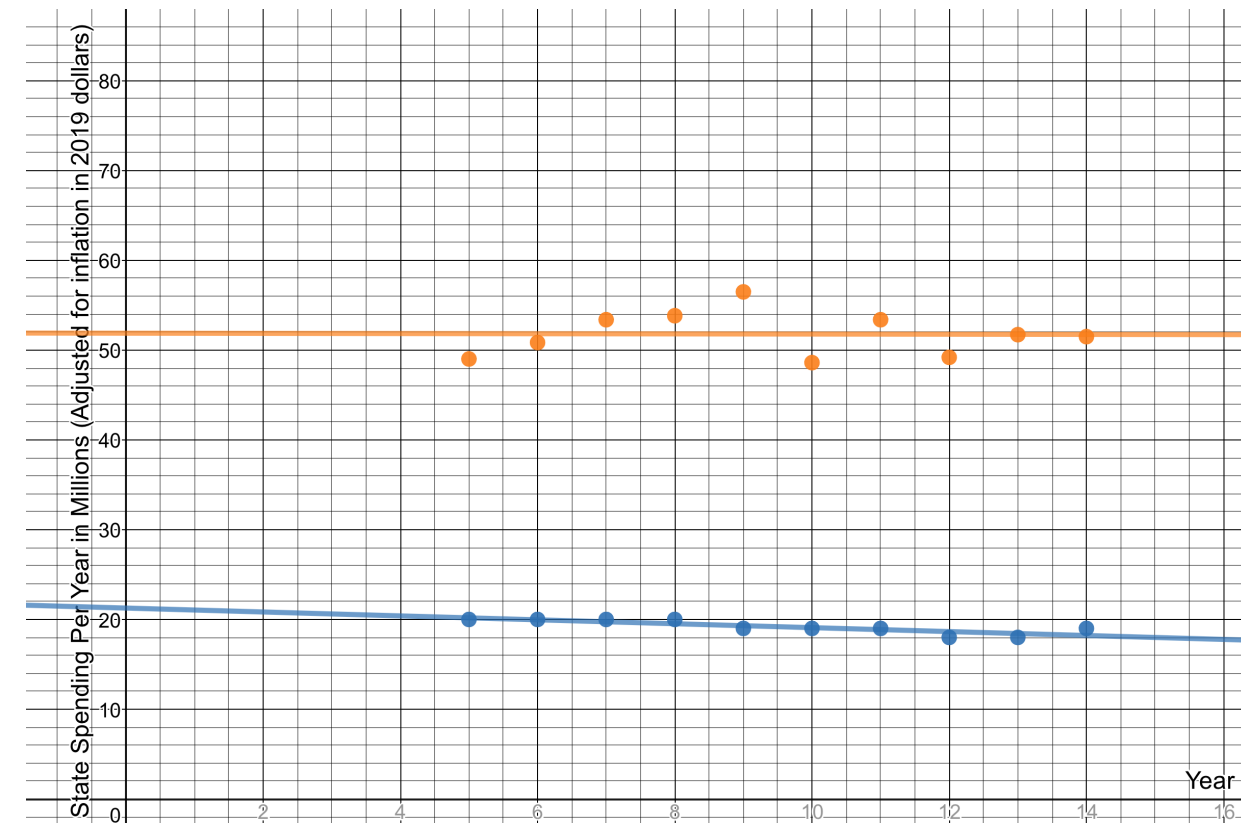
Spending more money on programs like Hudson link, lowers the rate of recidivism. Assisting felons back into society prevents them from committing crimes and lowers rates.

Group 10

Safe Drinking Water vs Spending on Healthcare

Moe R (67A), Keng V (53A), Jonathan R (67b), Aras W (67A)

John, a middle school student, goes home every day and drinks a cup of water and realizes it doesn't taste the same or looks the same as his friends water. He realizes that the water quality in California isn't as good as in other states. He researches safe drinking water and water quality. John found that in Minnesota, their safe drinking water is 99% per community. California's water percentage compared to Minnesota blows his mind. He also realizes that Minnesota exceeds the expectation for their state.
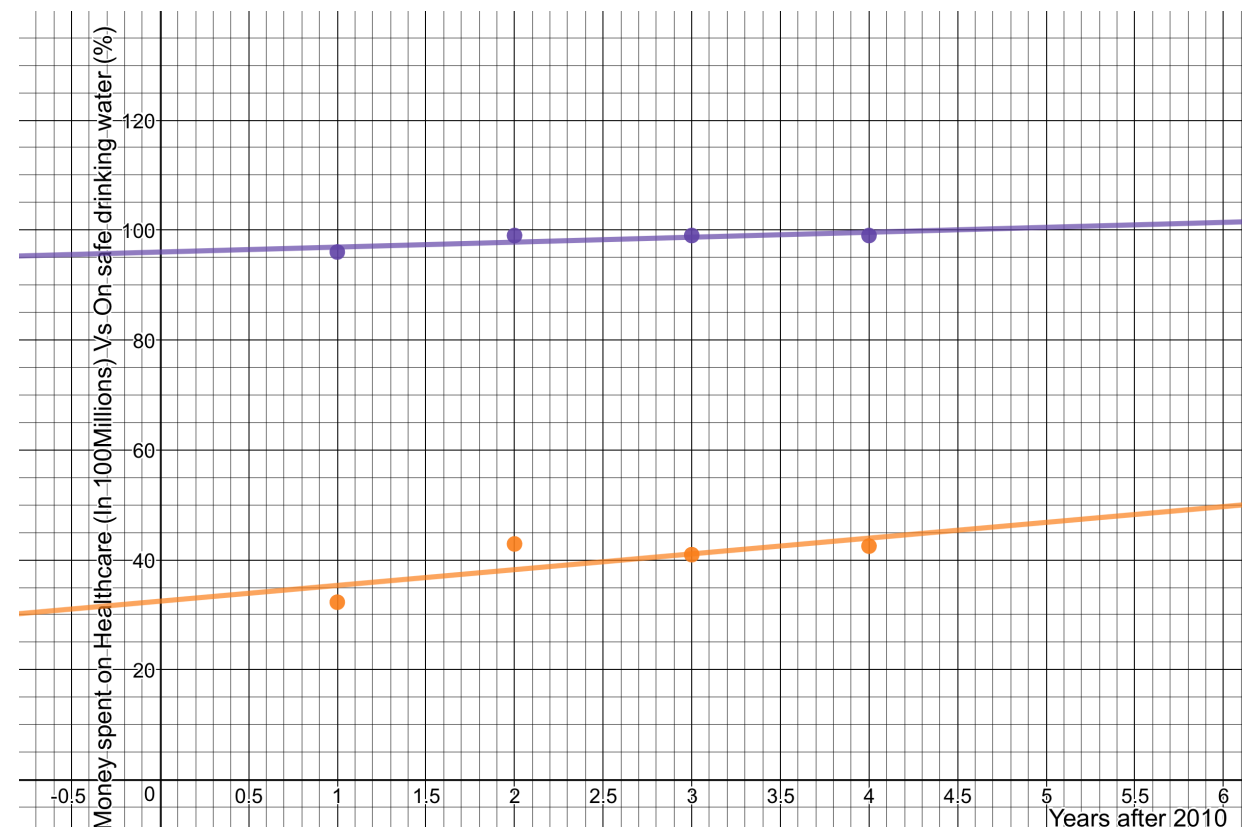
We found most of our data in the Minnesota department of health. We picked our topic about safe drinking water under healthcare. Looking at our graph, we can conclude that Minnesota's water is great and that the spending on healthcare is on the right track to Minnesota's safe drinking. In 2011, 96% per community had safe drinking water and the healthcare spending in that year was $3,227,869. In 2012, it went up by 3% in safe drinking water per community. In that year, healthcare spending was $4,288,490. This was a big jump and it also raised the safe drinking water per community. The correlation is not how much you spend, but how you spend it, and in Minnesota we are doing a great job on that.

Overall Minnesota exceeds the standards for safe drinking water for the community water systems. Minnesota's healthcare (including safe drinking water) is ranked 7 in the U.S according to several websites and we can expect to keep that rank if the state keeps spending money in that department.

Years	Healthcare spending	Safe drinking water
2011	3,227,869	96%
2012	4,288,490	99%
2013	4,093,265	99%
2014	4,248,812	99%

Water is a fundamental resource that humans need to live on. That means having safe drinking water where you live is important.

Group 11

Education Spending vs 3rd Grade Reading Proficiency

Noah K (67B), Ulric C (67A), Leo M (65A), and Calvin D (66B)

Our data was from a source that tells us the schools 3rd grade proficiency scores. and from the data we got we noticed that a large amount of schools have 40% or lower in 3rd grade reading proficiency, and the ones in greater Minnesota especially suffer, while the ones in Minneapolis/St Paul do better even though some of the ones in poor neighborhoods don't do very well and don't get that much of a budget.

We think that more education spending, mainly in greater Minnesota, and many rural areas need this. While also supplying schools in St. Paul and schools that desperately need it. While noticing that bigger/better schools in Minnesota get a huge budget and not all of it ends up getting used, Thinking that these schools could give some of their budget to other schools in need depending on where they are in the state/how big their budget is.
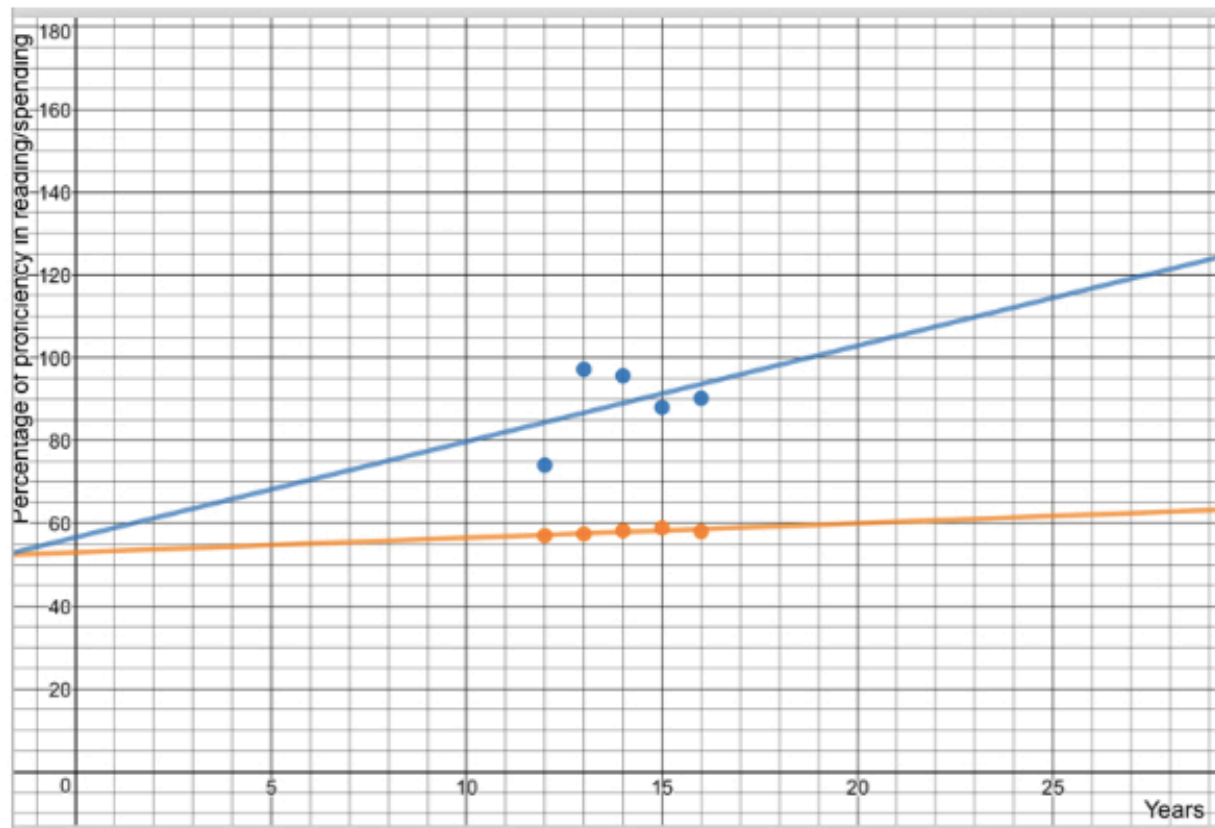
The graph below shows the amount spending and the reading proficiency from 2012-2016. In those past years, the graph shows odd results. The blue or the line with a more vertical angle is the spending of money in billions, but this is inflated, so it has accurate values according to this day. The orange or more horizontal line is the line that shows the proficiency in reading as a percentage. When looking at the graph, the money spent in 2012 is lower than 8 billion, but then the next year, the money spent, spikes. However, the proficiency in reading hadn't changed much. The next year, the money spent goes down by a little tiny bit, but the proficiency goes up. Then the money goes low, going back to near 8 billion, but the reading values increase to near 60%. Then the money spent increases again, but the reading values decrease.

The parallels between the data show Minnesota is doing moderately doing well in their reading levels but there is room for improvement.

Years	Money Spent	Reading %
2012	$7,404,246.35	57.00%
2013	$9,718,064.86	57.40%
2014	$9,562,936.08	58.20%
2015	$8,799,084.84	58.90%
2016	$9,020,664.70	58.00%

The data table shows Minnesota's spending has a little effect on reading levels. A possible solution could be to spend more money.
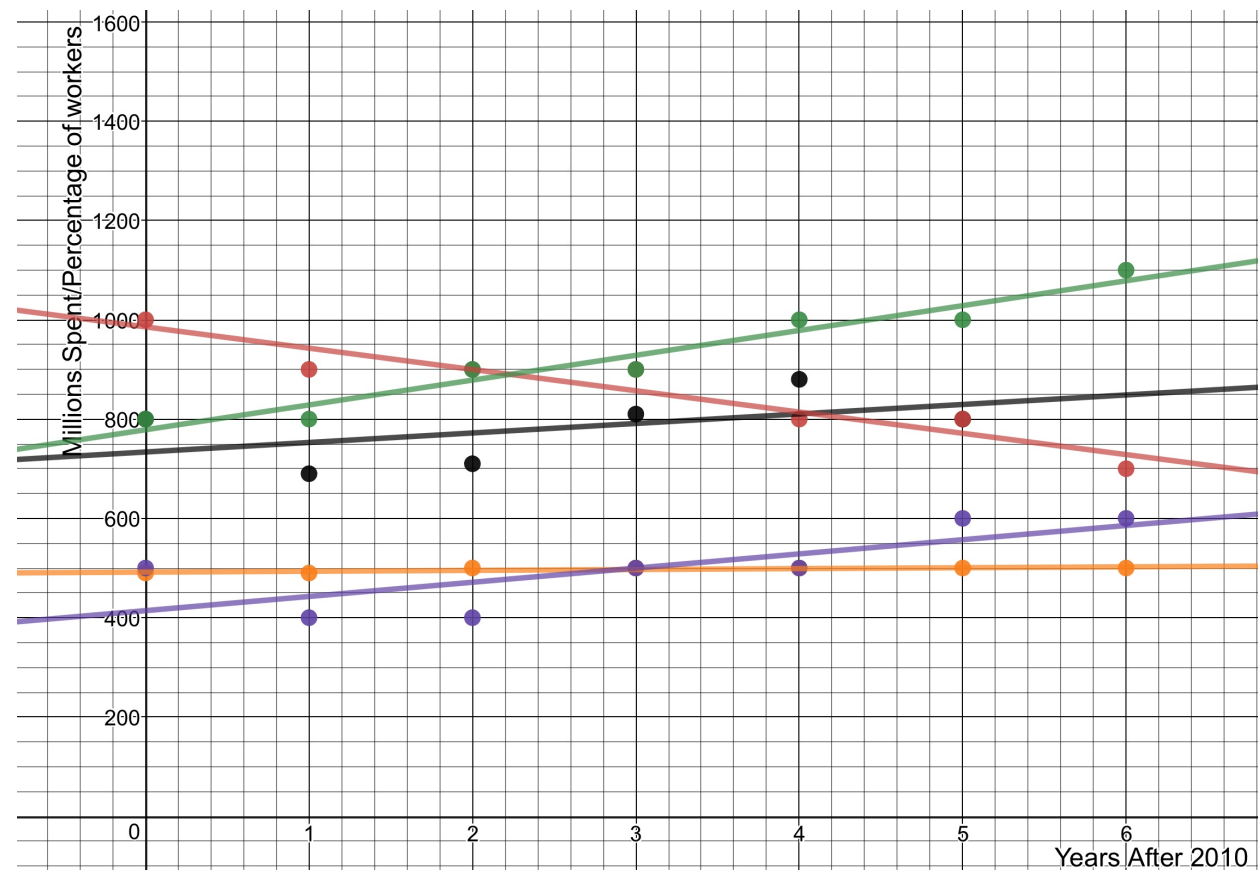
Group 12

Diversity in the Workplace

Ted D (65B), Anders M (65B), Liam S (67A), and Ben AK (64B)

Erica is a African American 29 year old living in the Twin cities who is Hard of Hearing. Despite the fact that she earned a degree in economics at St Olaf College has had great trouble to finding a job in her economics major. She is pining for a job at a specific accounting company. She managed to land an interview and booked an interpreter for the date.

We show through this project the different diversities in the workforce and what we can do to make it more diverse. Currently the percent of diverse workers is steadily going up and through funding we think that number can rise even more.

Our graph covers minorities in the workplace and the importance of keeping workforce development spending healthy in order to insure the growth of minorities in the workplace to an accurate representation.

Year	Female	Total Racial/Ethnic Minorities	Disabilities	Veterans	Workforce Development Spending (2019 dollars)*
2010	49%	8%	5%	10%	800
2011	49%	8%	4%	9%	690
2012	50%	9%	4%	9%	710
2013	50%	9%	5%	9%	810
2014	50%	10%	5%	8%	880
2015	50%	10%	6%	8%	800
2016	50%	11%	6%	7%	*In Millions

Workforce diversity is very important to Minnesota, our graph shows the percent of minorities and the funding for workforce diversity in years after 2010.
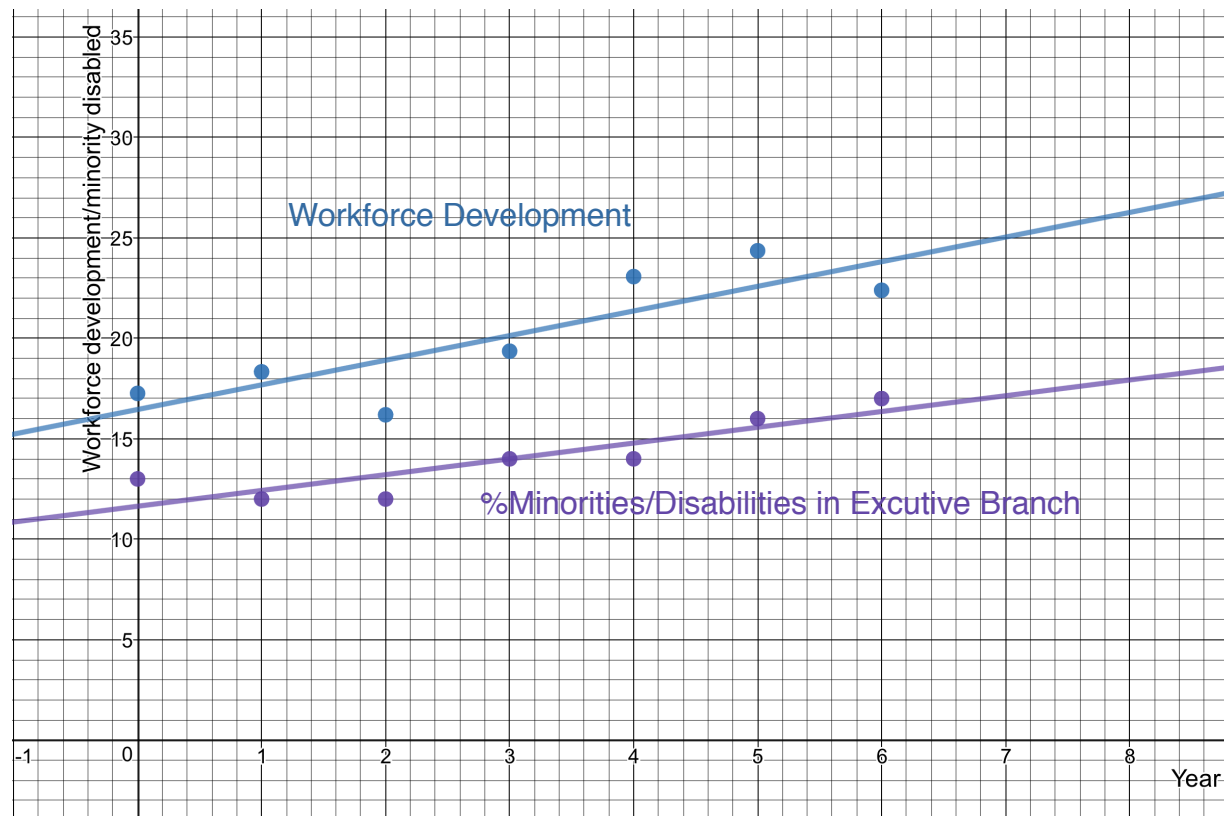
Group 13

Workforce Diversity vs. Spending on Diversifying the Workforce

Bea L. (65B), Frankie W. (64A), Sarah W. (65A), and Lucy G. (65A)

As more companies become more diverse, people will feel more represented in the workforce. So that's why we feel companies need to work towards diversity and making sure people from every ethnic background and people with all abilities have a voice and opportunities. Making more jobs available is diversifying the workplace because it is opening more job opportunities to people.

We collected out data from the Minnesota Management and Budget website. The trend we're seeing in this graph is that Minnesota was gradually spending more money on diversity as the years went on but in 2012 & 2016 dropped budget unexpectedly. As more companies become more diverse, people will feel more represented in the workforce. So that's why we feel companies need to work towards diversity, and making sure everyone from every ethnic background has a voice.

Year	% minority/Disabilities Executive Branch	Workforce Develop adj 2019
2016	17%	223,889.81
2015	16%	243,555.14
2014	14%	230,707.64
2013	14%	193,578.36
2012	12%	161,918.49
2011	12%	183,294.32
2010	13%	172,576.17

As the workforce becomes an environment for everyone, we have more people taking jobs. As people feeling lesser take them, they feel equal.

Group 14

Proficiency Rate in Math vs Per Pupil Allocation

Mi Paw (66B) Lydia G. (65A) Sam P. (66A) Sophie W. (67B)

From 2010 to 2015 Minnesota state spending on students increased slightly while math scores continued to go down. Only 50% of students in Minnesota actually understand the basic materials in math. And that means thousands and thousands of students are falling behind.

Now, the numbers get even worse when you look at certain subgroups. Only 37.5% of students receiving free or reduced lunch meet or exceed expectations in math; for African American/Black students the number is 29.7%; and for English learners, it's only 19.7%. If academic success in math impacts the future economic and life success of students then we have a huge problem and we need to change our education system.
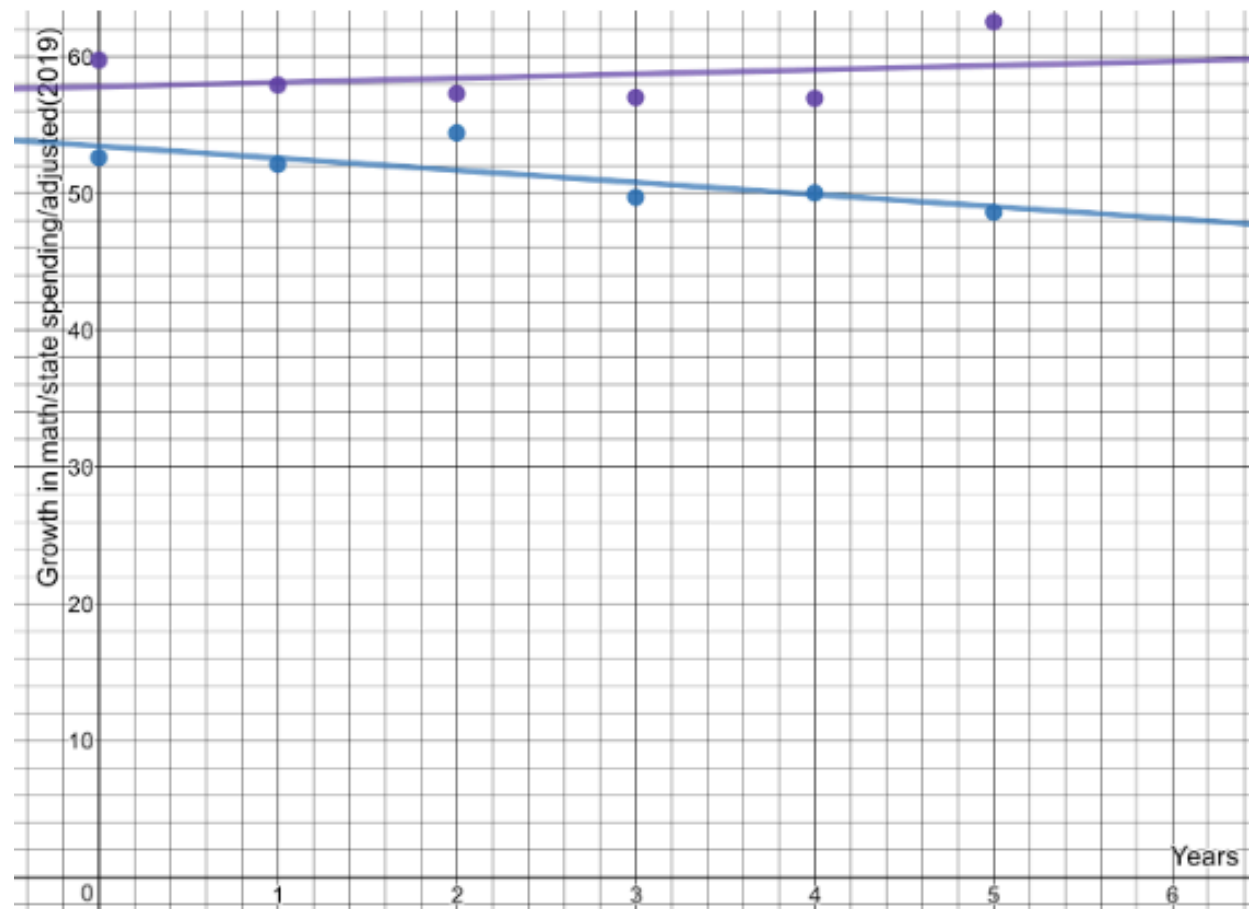
We got the state spending data from the research department at the Minnesota House of Representatives and the growth in math data from the MN dashboard. What we can conclude from this graph is that no matter how much money they invest in math education, it doesn't change the students growth in math because it seems to have gone down. As you can see from the graph and data table it goes up and down throughout the years, increasing at first then decreasing. We know that the state spending on education specifically in math doesn't change much, therefore isn't helping students improve in math.

So we propose that the math policy makers stop spending large amounts of money on math because it's not working. Perhaps try different ways to make math more fun and teach the kids how math is involved in their real life. We suggest spending some of that money on field trips where the students visit interesting jobs that use math. Another option would be to have professionals visit our schools that have a career in math like, Air Traffic Controller, Animator, Astronaut, Computer Graphics Engineer, Chemical Engineer, Forensic Analyst who use scientific techniques to solve criminal cases and more.

| Year	Growth in Math	Adjusted (2019)
2010	52.60%	$5,973.38
2011	52.10%	$5,790.60
2012	54.10%	$5,728.55
2013	49.70%	$5,700.41
2014	50.50%	$5,693.17
2015	48.60%	$6,253.78

https://www.usinflationcalculator.com/

"So it's not money that matters, it's what the policymakers can create to get teachers and students going towards the goal of higher student achievement," said Associate professor Nicola Alexander.

Group 15

State Spending on Fish and Wildlife vs Moose Population

Calvin C. (65B) and Mikko L. (65B)

Volunteers and firefighters pulled a 650 pound moose out of hungry jack lake on gunflint shore. When they got to the moose she wasn't moving because of starvation and because she was exhausted, she was very weak. When they pulled her she fell through the ice again because she was so couldn't get her grips. They had to pull her out again and on to land. We need to protect this majestic animals just as those volunteers and firefighters saved that moose's life.
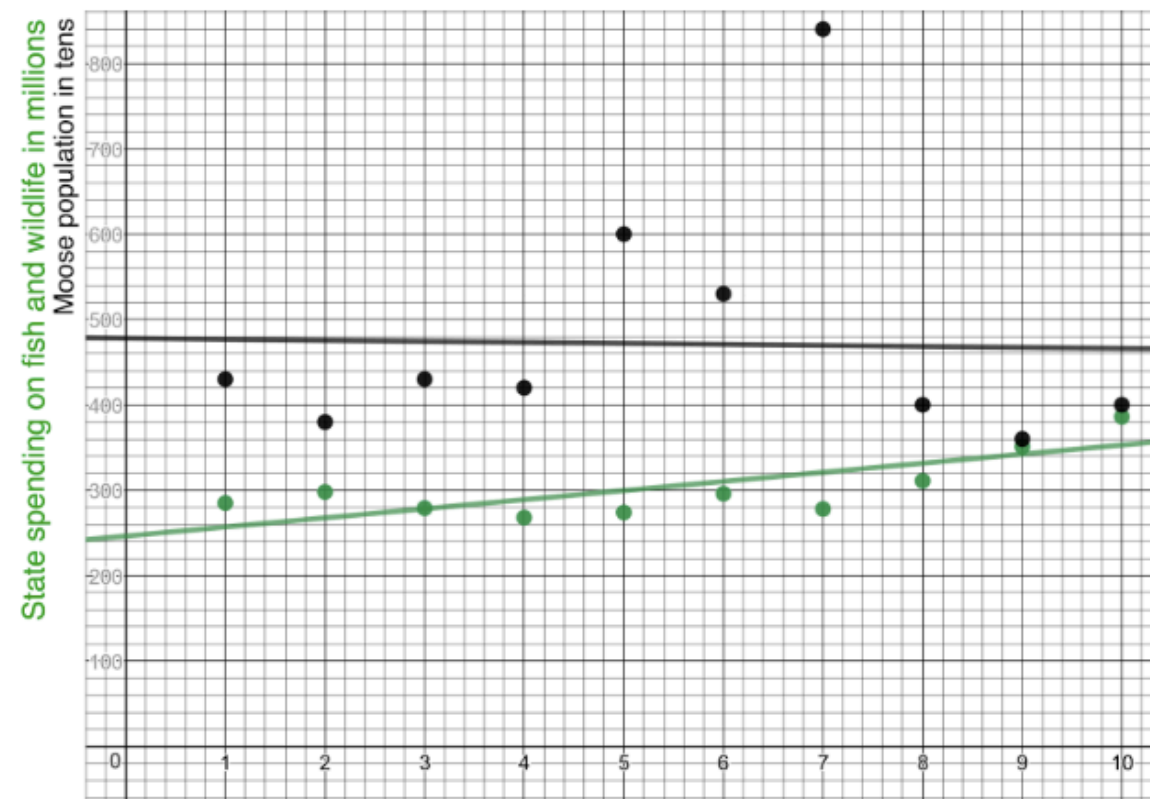
We need to try harder to save the the moose and the many other beautiful creatures from Minnesota. Research shows that the moose population is declining and the Minnesota DNR only gets 165 million out of the the 38 billion dollars out of the state income. That's 0.4342 percent of Minnesota's state income. But moose aren't the only species that are declining. If we increase the money we give to the Minnesota DNR we might be able to create more habitats for all the wildlife and turn the moose population around from shrinking to growing.

The moose population is declining because there losing shelter and food. We need to make shelter for this animal and many others. If we put more money in we could change the status of these creature from decreasing to increasing. Because as Dave Oricc says "As moose populations benefit all Minnesotans, it is critical that a broad source of funding be developed because without sound scientific information, we may lose moose and never know why." The moose population is decreasing no and we need to fix it.

x_1	y_1	x_2	y_2
1	285	1	430
2	298	2	380
3	279	3	430
4	268	4	420
5	274	5	600
6	296	6	530
7	278	7	840
8	311	8	400
9	351	9	360
10	386	10	400
11	388	11	390

"As moose populations benefit all Minnesotans, it is critical that a broad source of funding be developed because without sound scientific information, we may lose moose and never know why."
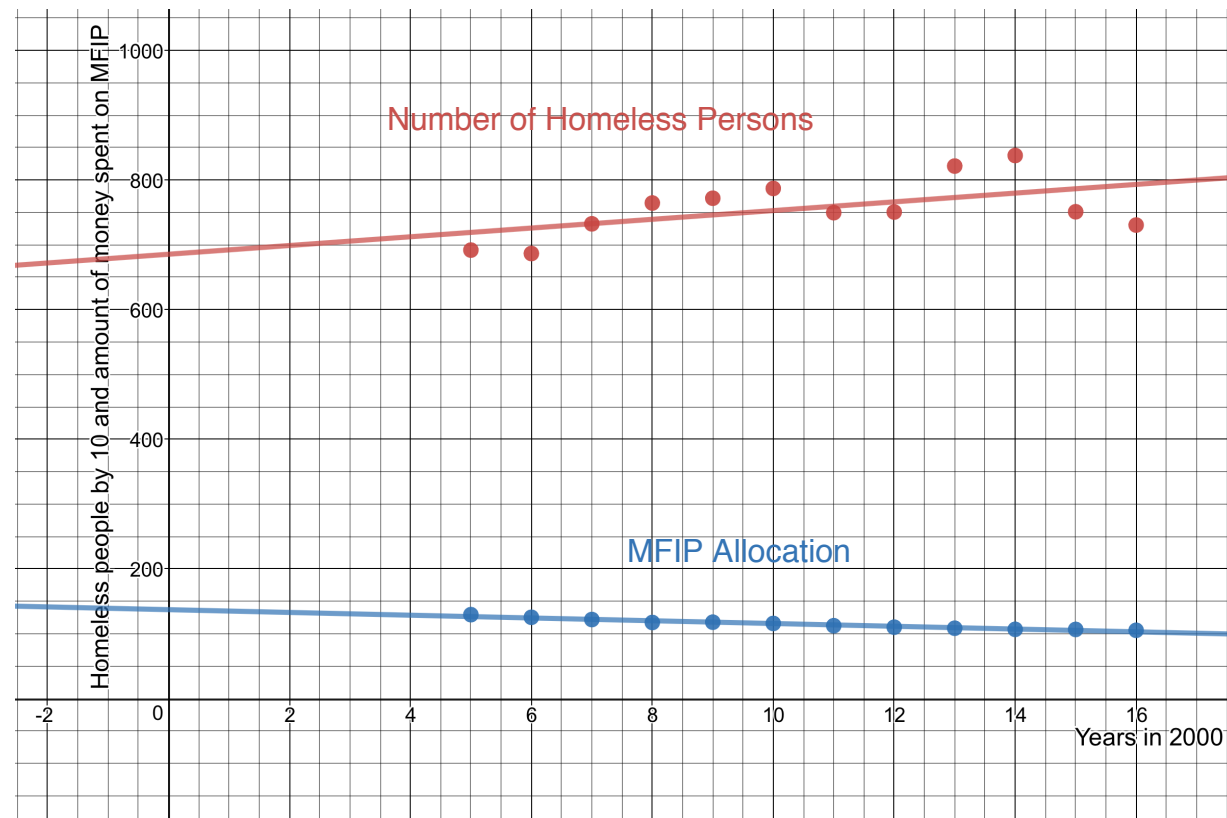
Group 17

Correlation of Homelessness Spending and

Homelessness Rates in Minnesota

Henry B (64B), Lucas R (64B) and Aidan J (64A)

Valencia McMurray was a student who was homeless. She was on her own since 10th grade,her mom left Valencia to take care of her grandmother and Valencia doesn't really know her dad. After her mom left she shared an apartment with one of her siblings, she worked at Burger King to pay the rent. A bunch of her siblings friends moved in and she had to leave, she ended up couch-hopping and missing a lot of school, her teacher (Mr. Heegard) could tell something was wrong "You would disappear for a week and I wouldn't know where you were. There was no way to get ahold of you. I started investigating. I don't think you were telling too many people" said Mr. Heegard. The school social worker found a space for Valencia at an emergency shelter for teens, she stayed there for three weeks before going to another shelter. For the last nine months she's been living in a transitional housing program.

In 2005 the homeless were getting the current equivalent of 129.43 dollars with 6918 homeless. Then, in 2016, those 100 dollars were worth 105.32 dollars with 7304 people homeless. We believe that there is a correlation between these events.

Year	Number Homeless	MFIP adj
2005	6918	129.43
2006	6865	125.38
2007	7323	121.91
2008	7644	117.4
2009	7718	117.82
2010	7869	115.92
2011	7495	112.38
2012	7505	110.1
2013	8214	108.51
2014	8377	106.78
2015	7509	106.65
2016	7304	105.32

As the amount of homelessness has fluctuated quite a bit the correlation is clear as the overall value of what MFIP spending goes down the amount of homelessness goes up.

Education Spending and its Impact on
High School Graduation Rates in Four Years

Oliver J. (67B) and Hiroko Z. (66B)

Xavier Simmons was a high school freshman. He'd sleep during his classes, and ended up failing 4 classes that year. The next year, he dropped out. He didn't think it was a big deal, he didn't know what he was supposed to do, he took the wrong path. At age 27, Simmons doesn't have a high school diploma, he got what he deserved. He didn't try. But there was a reason a sense of desperation: he quit school to find work, and help his mother pay their bills. Xavier Simmons now is working toward his GED (General Education Development) certificate. Being African- American an, in the end, Simmons, was free to flounder in a state where students of color have some of the lowest rates of graduation in the nation.

We found the data from the MN School report in pages 9-10 and graphed the data with the years 2003-2015. Then we put the graduation rate and the PPA (Per Pupil Allocation) adjusted to 2019 dollars into a graph with years after 2000 as the X axis and Education Spending (100s)/Graduation Rates as the Y axis. The data shows that graduation rates are going up even though PPA Data Adj is going down. So if PPA Data Adjustment 2019 goes up the graduation rate might go up even more.

Education Spending is going down and we need to fix it so students can learn and so their graduation rates can go up even more. We think if we spend more money on education, more people can graduate, and support every kid, from every background.

Year after 2000	Graduation Rate	PPA Data Adj 2019
3	73.0%	6,320.77
4	74.0%	6,156.82
5	75.0%	5,955.06
6	75.0%	5,997.16
7	75.0%	6,063.93
8	74.0%	5,957.12
9	74.0%	6,037.30
10	76.0%	5,939.87
11	77.0%	5,758.11
12	78.0%	5,696.42
13	80.0%	5,668.44
14	81.0%	5,661.24
15	82.0%	6,218.70

As the years go by, the graduation rate is slowly increasing. But if Education Spending goes up, the graduation rate should increase faster.
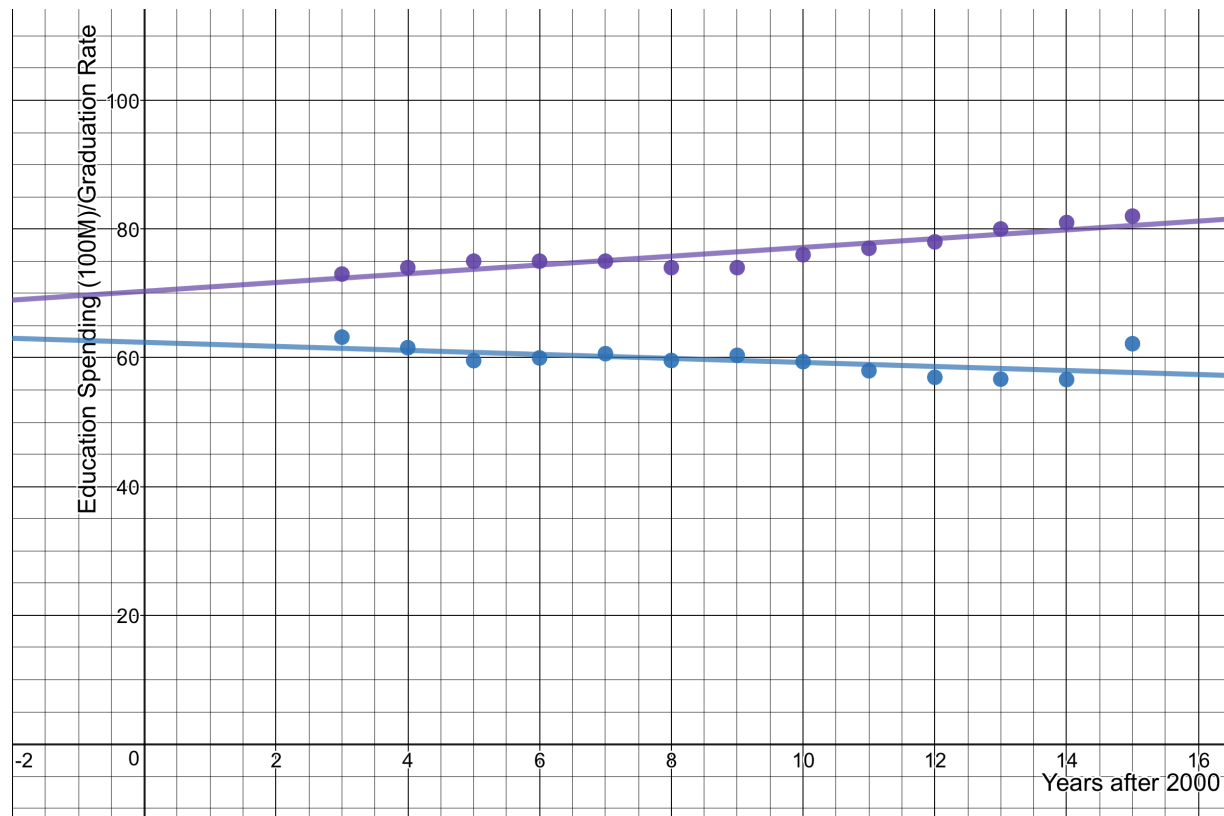
Group 19

# State Spending on Healthcare and Obesity Over the Years

Krista H (65A), Natasha K (65B), Lucy A-B (65A),

and Debora T (64B)

At the age of 12, Daniel weighed 329 pounds. He tried to go on diets but they didn't work, at 11 he started experiencing neck and back pain and headaches. His sight started to go bad. Daniels huge weight gain put a lot of pressure on his optic nerves that was making him blind. They recommended a gastric bypass and at the age of 12 Daniel became probably the youngest person in the world at the time to receive a gastric bypass. The bypass was successful, he lost more than 170 pounds and got most of his eyesight back. The article was posted or updated on March 23, 2011 and said that he was 19 weighing 166 pounds and his body is now limber and strong.

We collected our data from the Minnesota Public Health Data Access from 2011-2017 in the overweight and obesity in Minnesota chart. The graph shows that the obesity levels in MN have not drastically changed a lot over the years. The percentages range from 24-29%. The highest percentage being in 2017 and the lowest in 2013. The most consistent years were 2011-2013.

Low income neighbourhoods and families are at a higher risk of obesity. They have less access to healthier food, and don't have the time or money to pay for a gym membership either. A study by Concordia university had found that people who earn $20,000 or less annually are 50% less likely to go to gyms and lose weight in a more effective way.

Year	State Spending (Mill)	Obesity Percentage
2011	17.051589	25
2012	17.329677	25
2013	18.356892	24
2014	20.448461	27
2015	20.775793	26
2016	21.764182	28
2017	21.393829	29
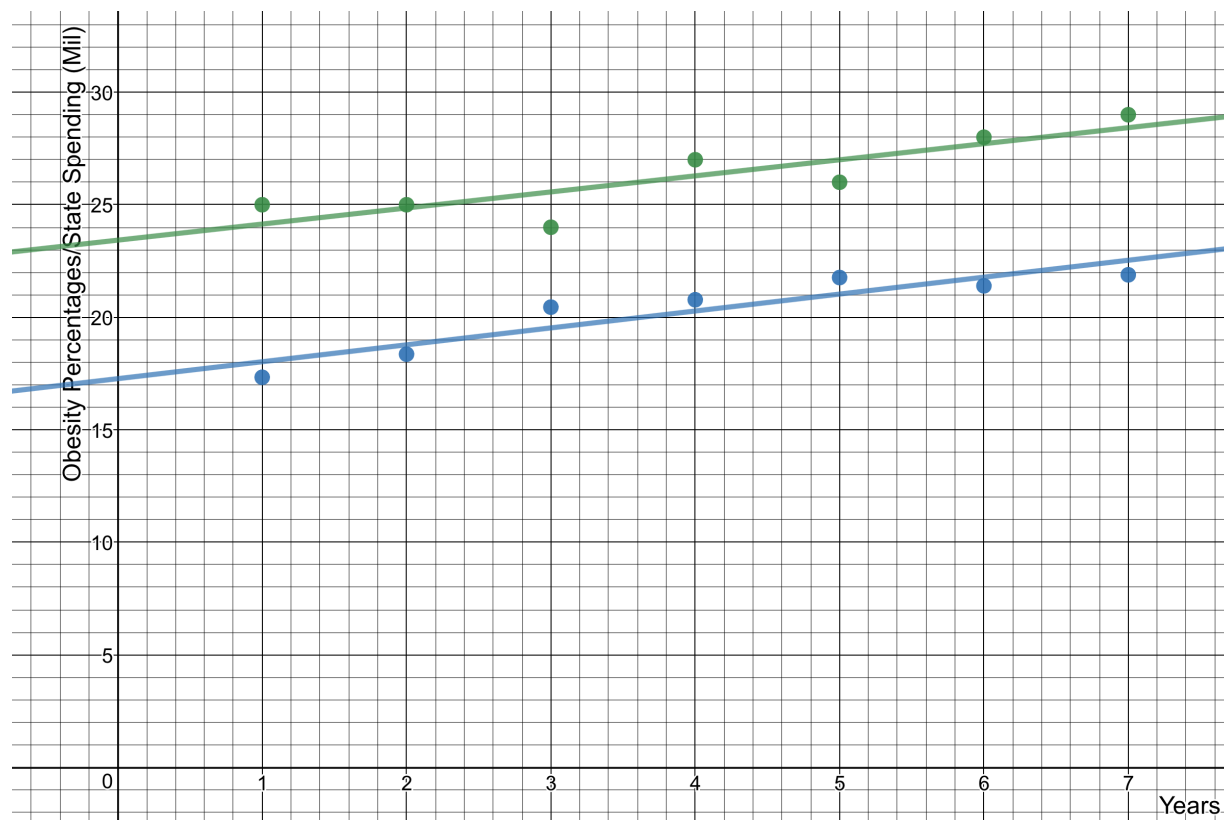
Except for smoking, obesity is now the number one preventable cause of death in this country. Three hundred thousand people die of obesity every year.