

By Teva & Gwen

Correlation -vs- Causation

How does ____ affect your sleep? / How does your sleep schedule affect you?

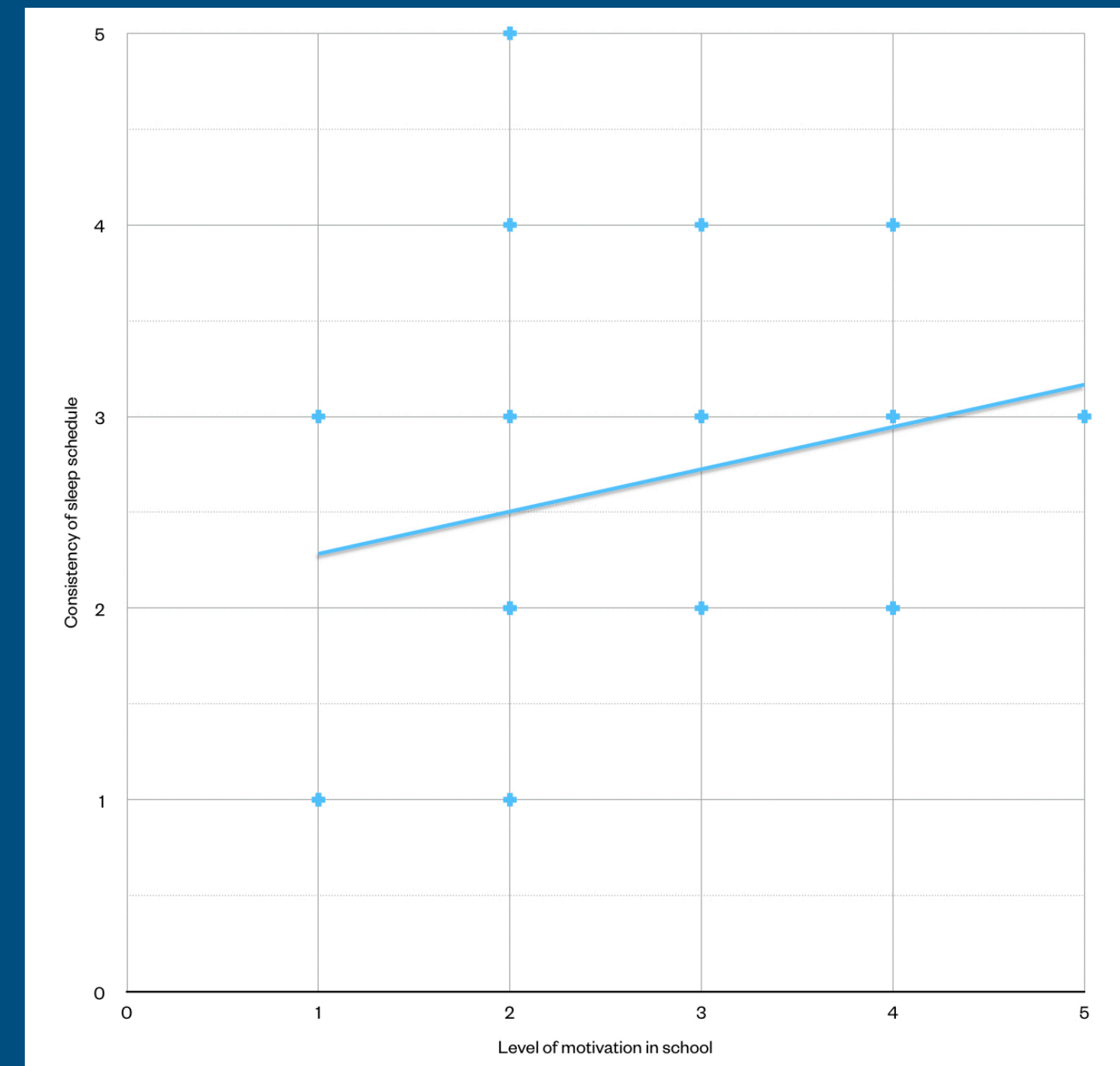
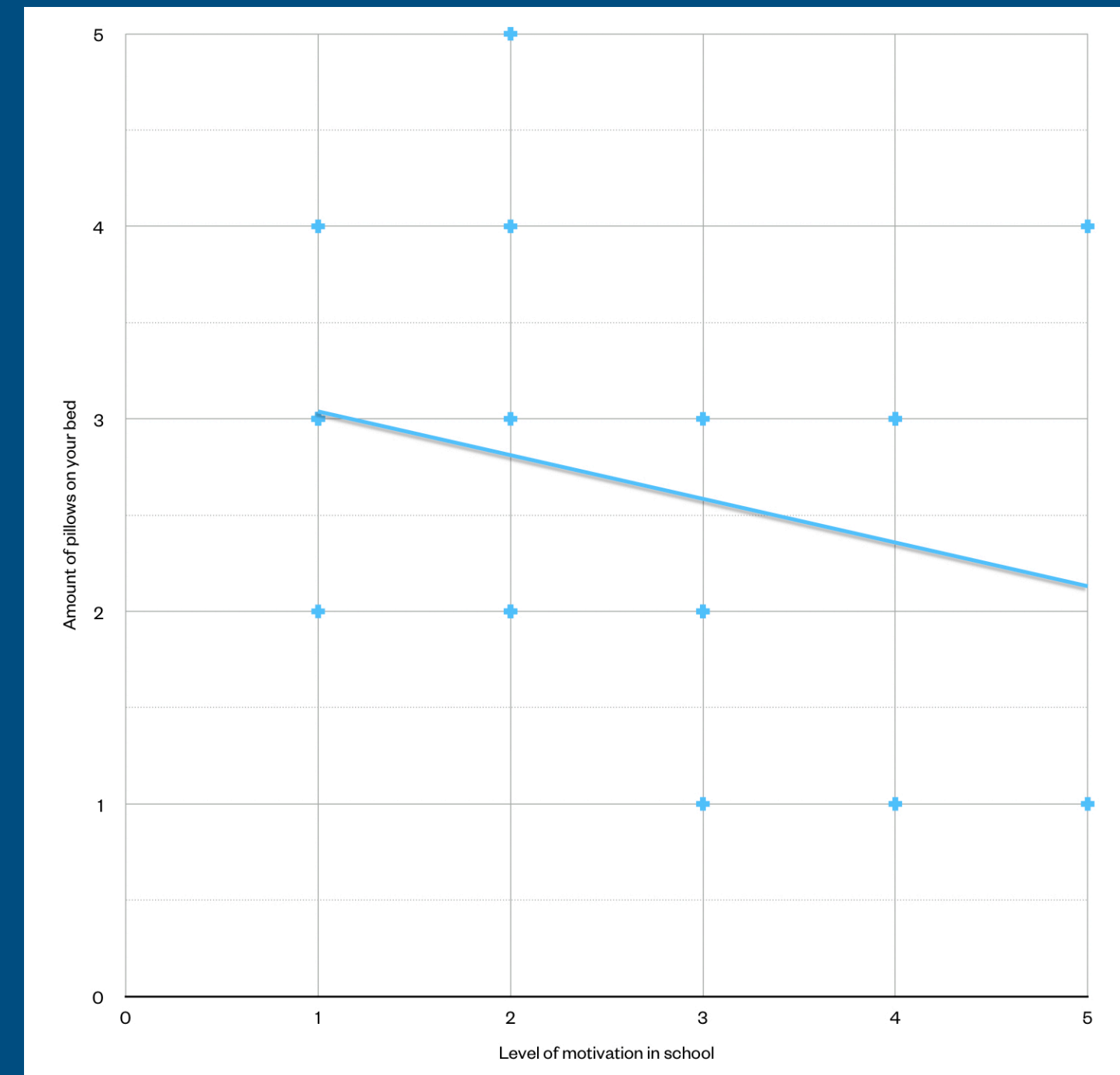


What Was The Goal Of Our Survey?

- The main goal of our survey was to figure out what variables affect your sleep.
- Originally, our prediction was that students in the Performance Learning Program who have more pillows get a better sleep, have a healthier sleep schedule, and have a positive attitude when it comes to school. We later found that was not the case.



- The second main factor we were hoping to find a correlation with (and possibly a causation), was how your behaviours during the day (especially in school) are being affected by your sleep schedule. Which, we also found that it was not a strong correlation between two.



Who Did We Survey?



How does ____ affect your sleep? / How does your sleep schedule affect you?

Thank you for choosing to fill out our survey!

The main goal of this survey is to figure out what variables affect your sleep. Our prediction is that students in the Performance Learning Program who have more pillows get a better sleep, have a healthier sleep schedule, and have a positive attitude when it come to school. There are multiple correlations we may find after collecting the data, however the second main factor we are hoping to find a correlation with (and possibly a causation), is how your behaviours during the day (especially in school) are being affected by your sleep schedule. After collecting the data from this survey, we will use a numbers document to gather, plot, and verify our data via looking at the graph in the document to identify positive and or negative correlations.

After collecting the data, the outcome of our data will be posted in our Summative Project Reflection post on our learning portfolios.

This survey was created by Gwen L and Teva B
If you have any questions, comments, feedback, or concerns please contact either one of us: tevab@seycove.ca , gwenl@seycove.ca

Feel free to check out our learning portfolios!

Gwen: <http://www.blog44.ca/gwenl/>

Teva: <https://www.blog44.ca/tevab/>

Through Learner Central, we asked students from every grade in the Performance Learning Program to fill out our survey. We asked everyone in the population of PLP learners, and learners had the choice to fill out the survey. 20 students chose to fill out our survey out of the 140+ students in the program. This was a ***Voluntary Response sample***.

Ideally, we would have collected data from the entire **population** of PLP learners. It would have given us more accurate results, however, we understand it is difficult to make every learner take the survey. We decided on a voluntary response sample so that it would be convenient for all parties.

This is our survey

Survey questions

- Which grade are you in?
- On average, what time do you fall asleep on school days?
- On average, what time do you fall asleep on weekends?
- On average, what time do you wake up on school days?
- On average, what time do you wake up on weekends?
- Do you participate in extra curricular activities inside of school?
- Do you find it difficult to be productive or motivated in the evening?
- Do you find it difficult to be productive or motivated in the morning?
- How often do you fall asleep at the same time on weekdays?
- What colour is your room?
- Do you at least own one pair of funky socks?
- Are you proud of the work and performance you express in school?
- On average, How many hours of sleep do you get per night?
- How difficult is it to go to sleep?
- On average, how many times do you wake up during the night?
- On average, how many nights per week do you get poor sleep?
- How would you rate your overall sleep quality per week?
- How would you rate the consistency of your sleep?
- how sleepy / exhausted do you feel during the day?
- On average, how much stress do you feel before going to bed on week nights?
- Do you feel that you are academically successful in school?
- How easy or hard do you find it to stay motivated in school?
- Are you on your screen before bed, if so, for how long?
- How many pillows do you have on your bed?
- If you do have funky socks, how funky would you rate them?

Survey Data



We were able to collect the data from 20 PLP learners from various grades (8 - 11/12)

Correlation & Causation Data

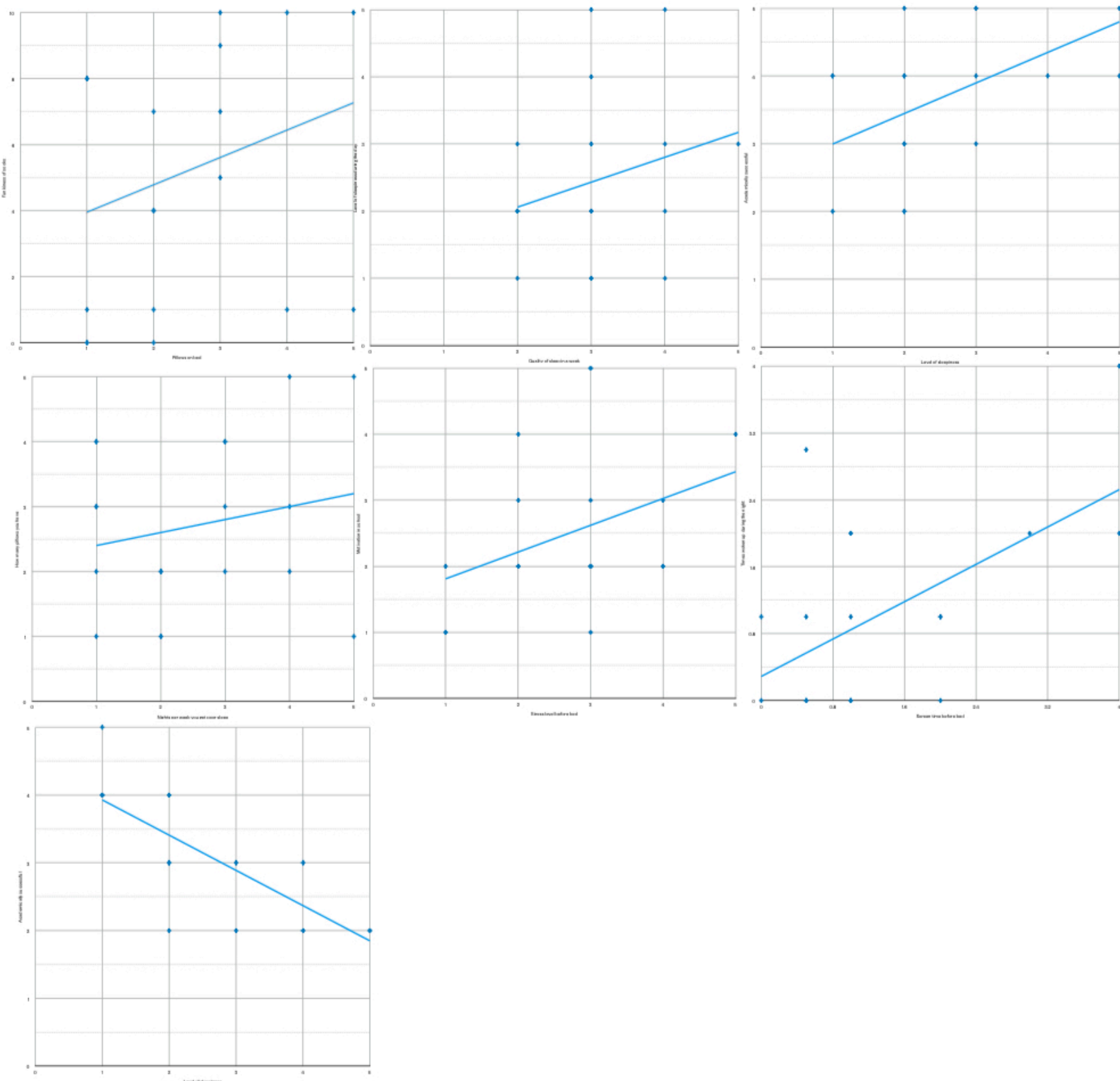
Rating from 1-5
Rating from 1-10
Multiple choice

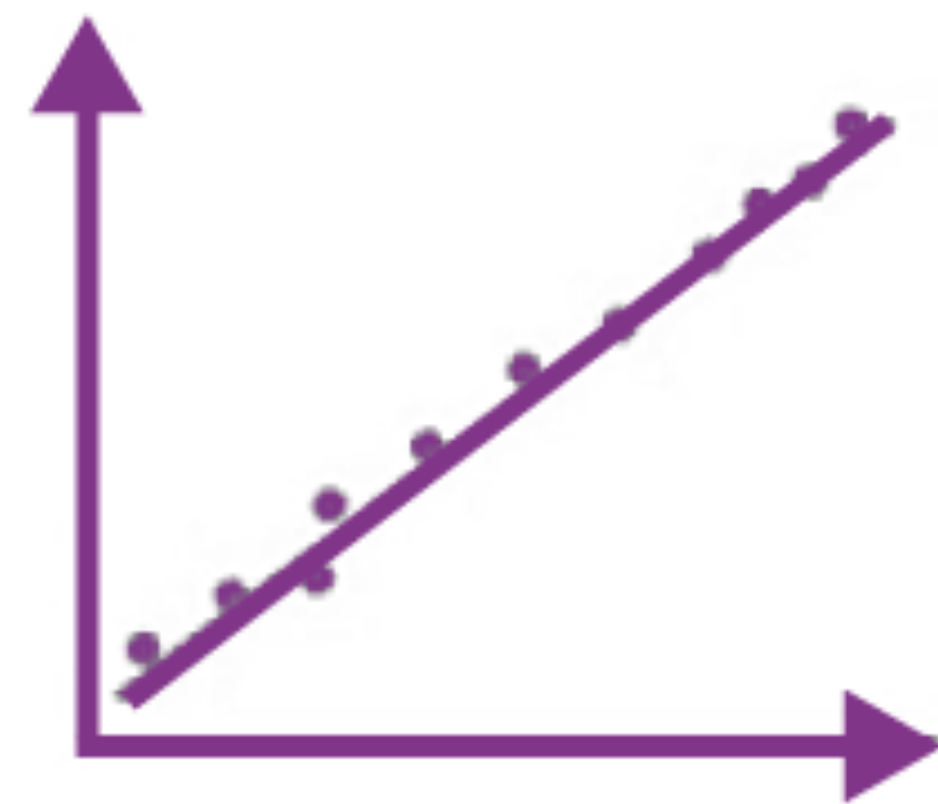
Survey Submission #	Quality of sleep in a week	Difficulty of going to sleep	Level of sleepiness during the day	Consistency sleep schedule	Academically successful	Motivation in school	Stress level before bed	Funkiness of socks	Pillows on bed	Hours of sleep per night	Screen time before bed	Nights per week get poor sleep	Times woken up during the night
1	3.0	1.0	1.0	3.0	2.0	2.0	2.0	5.0	3.0	7.0	1.0	4.0	1.0
2	4.0	2.0	1.0	3.0	2.0	3.0	1.0	8.0	1.0	9.0	1.0	1.0	0.0
3	2.0	3.0	2.0	1.0	2.0	1.0	1.0	10.0	5.0	6.0	4.0	5.0	2.0
4	2.0	2.0	3.0	3.0	5.0	3.0	2.0	10.0	3.0	9.0	0.5	4.0	0.0
5	4.0	2.0	3.0	2.0	5.0	5.0	4.0	1.0	2.0	8.0	0.5	2.0	3.0
6	4.0	1.0	3.0	2.0	4.0	2.0	3.0	4.0	2.0	5.0	0.5	1.0	0.0
7	3.0	3.0	4.0	4.0	4.0	2.0	4.0	0.0	1.0	9.0	2.0	4.0	1.0
8	4.0	2.0	2.0	2.0	4.0	2.0	2.0	7.0	3.0	5.0	1.0	2.0	2.0
9	3.0	4.0	2.0	4.0	3.0	3.0	5.0	8.0	1.0	10.0	0.0	3.0	0.0
10	2.0	2.0	2.0	5.0	2.0	3.0	2.0	1.0	4.0	4.0	0.0	5.0	0.0
11	3.0	1.0	5.0	4.0	5.0	4.0	2.0	7.0	2.0	3.0	1.0	2.0	2.0
12	2.0	3.0	2.0	5.0	5.0	3.0	2.0	0.0	1.0	6.0	4.0	4.0	4.0
13	2.0	4.0	2.0	5.0	3.0	3.0	5.0	10.0	4.0	10.0	0.0	2.0	1.0
14	3.0	2.0	2.0	2.0	3.0	1.0	2.0	10.0	4.0	9.0	1.0	3.0	0.0
15	3.0	3.0	1.0	4.0	4.0	2.0	2.0	0.0	2.0	9.0	3.0	2.0	2.0
16	4.0	4.0	5.0	4.0	4.0	3.0	3.0	4.0	2.0	9.0	0.5	1.0	0.0
17	2.0	1.0	1.0	1.0	4.0	1.0	1.0	9.0	3.0	7.0	2.0	3.0	1.0
18	5.0	3.0	3.0	3.0	3.0	4.0	2.0	1.0	5.0	7.0	2.0	1.0	0.0
19	3.0	2.0	3.0	2.0	5.0	4.0	3.0	8.0	1.0	6.0	0.5	2.0	1.0
20	3.0	4.0	2.0	2.0	4.0	3.0	2.0	1.0	1.0	8.0	1.0	3.0	0.0

Correlation & Causation Data

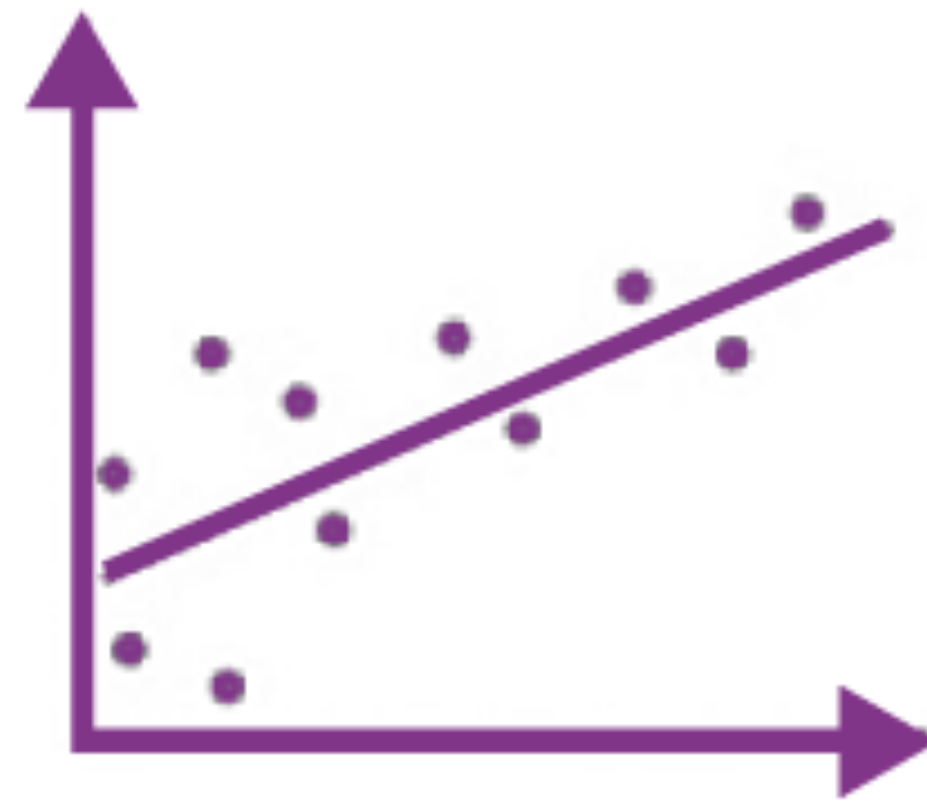
Rating from 1-5
Rating from 1-10
Multiple choice

Survey Submission #	Quality of sleep in a week	Difficulty of going to sleep	Level of sleepiness during the day	Consistency sleep schedule	Academically successful	Motivation in school	Stress level before bed	Funkiness of socks	Pillows on bed	Hours of sleep per night	Screen time before bed	Nights per week get poor sleep	Times woken up during the night
1	3.0	1.0	1.0	3.0	2.0	2.0	2.0	5.0	3.0	7.0	1.0	4.0	1.0
2	4.0	2.0	1.0	3.0	2.0	3.0	1.0	8.0	1.0	9.0	1.0	1.0	0.0
3	2.0	3.0	2.0	1.0	2.0	1.0	1.0	10.0	5.0	6.0	4.0	5.0	2.0
4	2.0	2.0	3.0	3.0	5.0	3.0	2.0	10.0	3.0	9.0	0.5	4.0	0.0
5	4.0	2.0	3.0	2.0	5.0	5.0	4.0	1.0	2.0	8.0	0.5	2.0	3.0
6	4.0	1.0	3.0	2.0	4.0	2.0	3.0	4.0	2.0	5.0	0.5	1.0	0.0
7	3.0	3.0	4.0	4.0	4.0	2.0	4.0	0.0	1.0	9.0	2.0	4.0	1.0
8	4.0	2.0	2.0	2.0	4.0	2.0	2.0	7.0	3.0	5.0	1.0	2.0	2.0
9	3.0	4.0	2.0	4.0	3.0	3.0	5.0	8.0	1.0	10.0	0.0	3.0	0.0
10	2.0	2.0	2.0	5.0	2.0	3.0	2.0	1.0	4.0	4.0	0.0	5.0	0.0
11	3.0	1.0	5.0	4.0	5.0	4.0	2.0	7.0	2.0	3.0	1.0	2.0	2.0
12	2.0	3.0	2.0	5.0	5.0	3.0	2.0	0.0	1.0	6.0	4.0	4.0	4.0
13	2.0	4.0	2.0	5.0	3.0	3.0	5.0	10.0	4.0	10.0	0.0	2.0	1.0
14	3.0	2.0	2.0	2.0	3.0	1.0	2.0	10.0	4.0	9.0	1.0	3.0	0.0
15	3.0	3.0	1.0	4.0	4.0	2.0	2.0	0.0	2.0	9.0	3.0	2.0	2.0
16	4.0	4.0	5.0	4.0	4.0	3.0	3.0	4.0	2.0	9.0	0.5	1.0	0.0
17	2.0	1.0	1.0	1.0	4.0	1.0	1.0	9.0	3.0	7.0	2.0	3.0	1.0
18	5.0	3.0	3.0	3.0	3.0	4.0	2.0	1.0	5.0	7.0	2.0	1.0	0.0
19	3.0	2.0	3.0	2.0	5.0	4.0	3.0	8.0	1.0	6.0	0.5	2.0	1.0
20	3.0	4.0	2.0	2.0	4.0	3.0	2.0	1.0	1.0	8.0	1.0	3.0	0.0

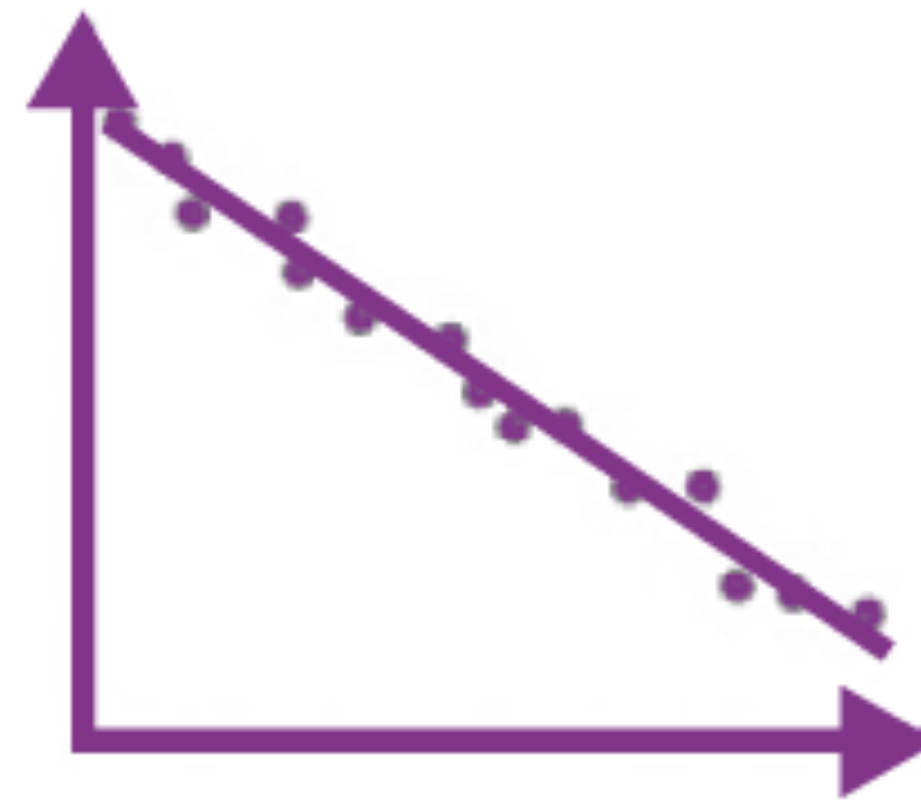




Strong positive correlation



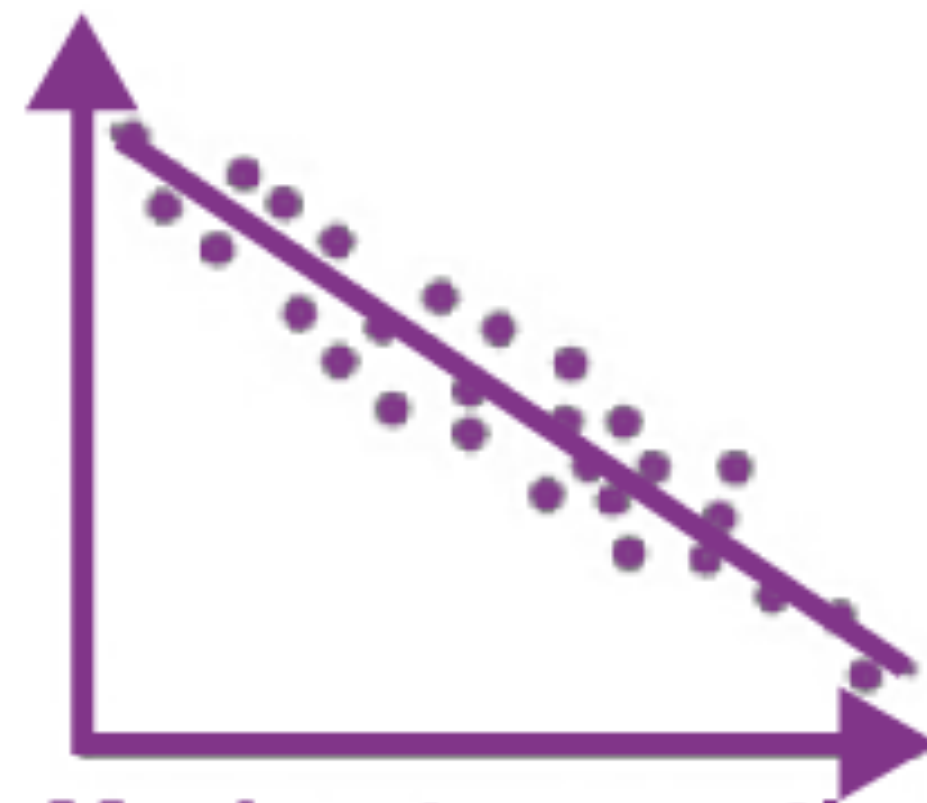
Weak positive correlation



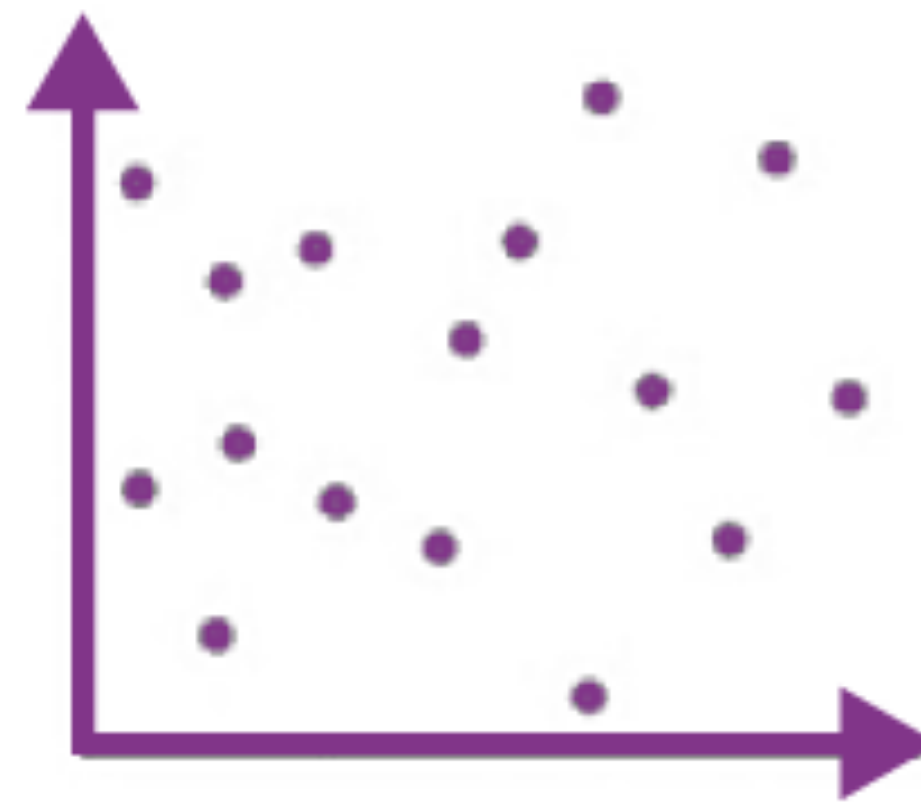
Strong negative correlation



Weak negative correlation

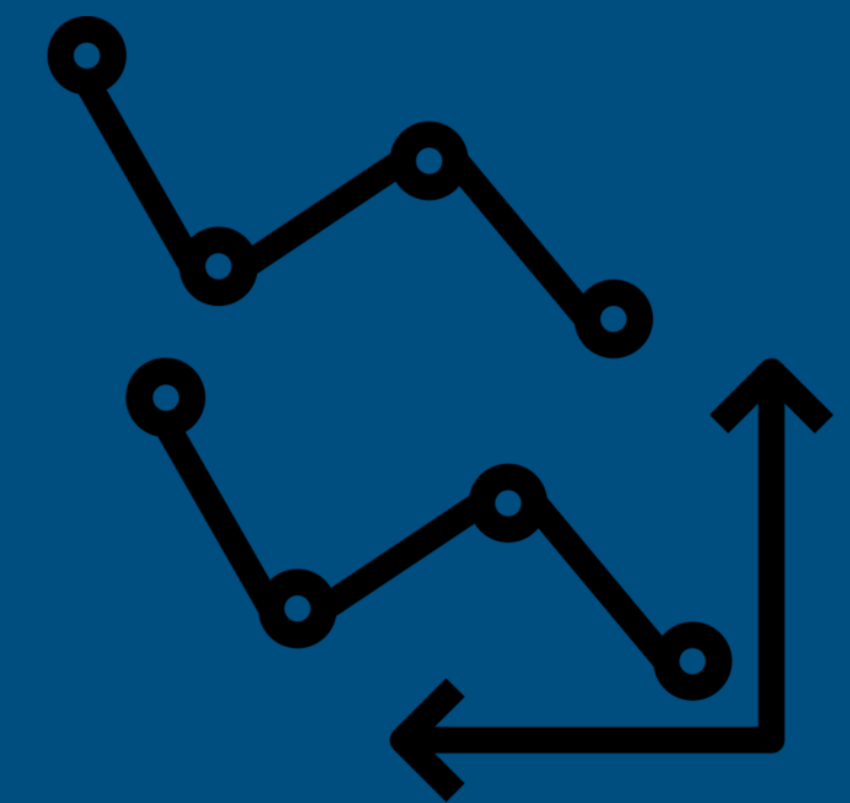


Moderate negative correlation



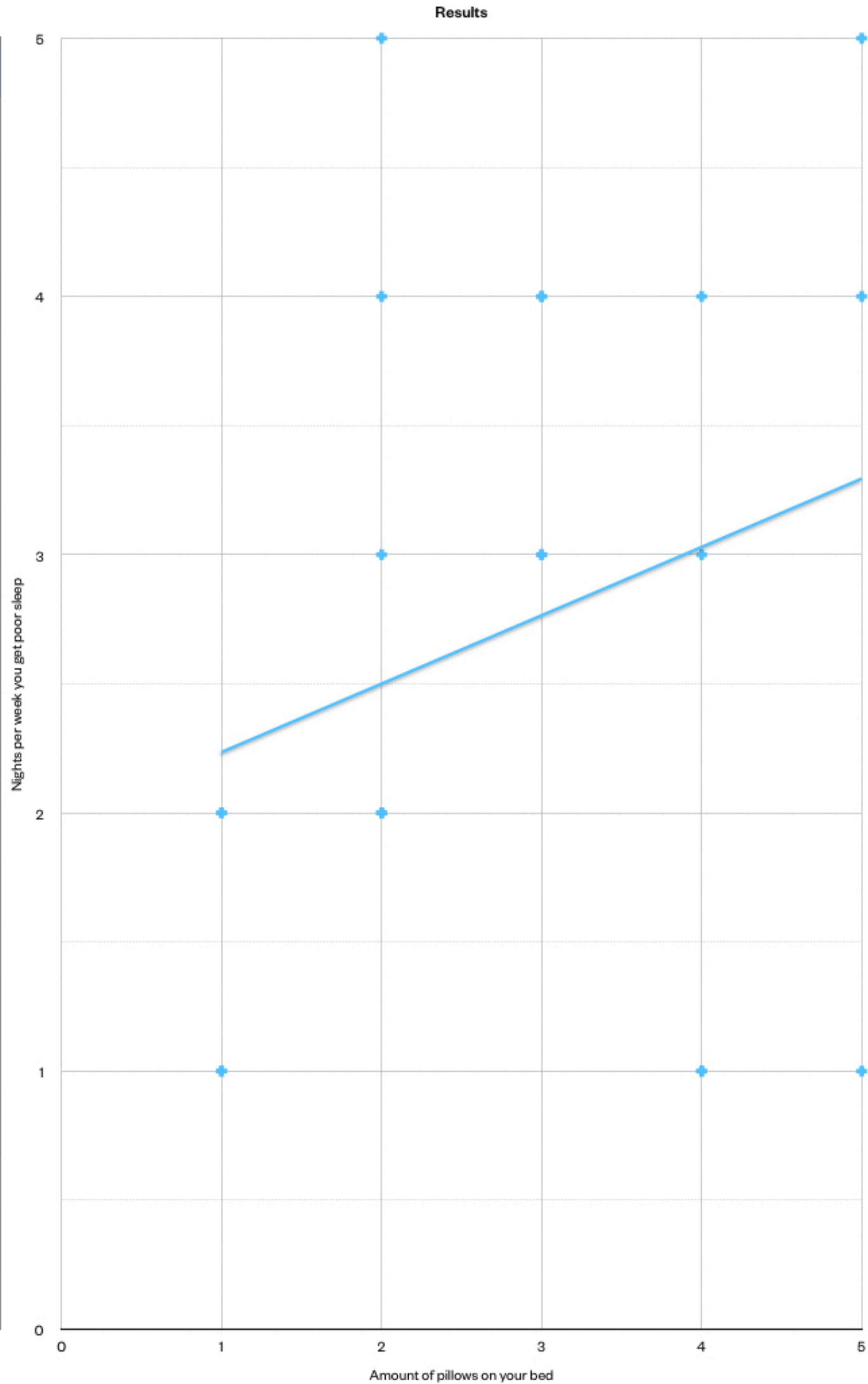
No correlation

Types of Correlations



The amount of pillows you have in your bed was found to correlate to the amount of nights you experience poor quality sleep in per week

Survey Submission #	Nights per week get poor sleep	Pillows on bed
1	3.0	3.0
2	1.0	1.0
3	5.0	5.0
4	4.0	3.0
5	2.0	2.0
6	1.0	2.0
7	4.0	1.0
8	2.0	3.0
9	5.0	1.0
10	5.0	4.0
11	2.0	2.0
12	4.0	1.0
13	2.0	4.0
14	3.0	4.0
15	1.0	2.0
15	2.0	2.0
16	3.0	3.0
17	2.0	5.0
18	1.0	1.0
19	4.0	4.0
20	3.0	4.0



Correlation #1

Correlation : a connection or relationship between two or more things that may not directly cause each other

Survey Data Questions Used:

How many nights to you experience poor sleep in per week?

How many pillows do you have on your bed?



Moderate/Weak Positive Correlation

Your level of academic success was found to correlate to the level of sleepiness you feel during the day

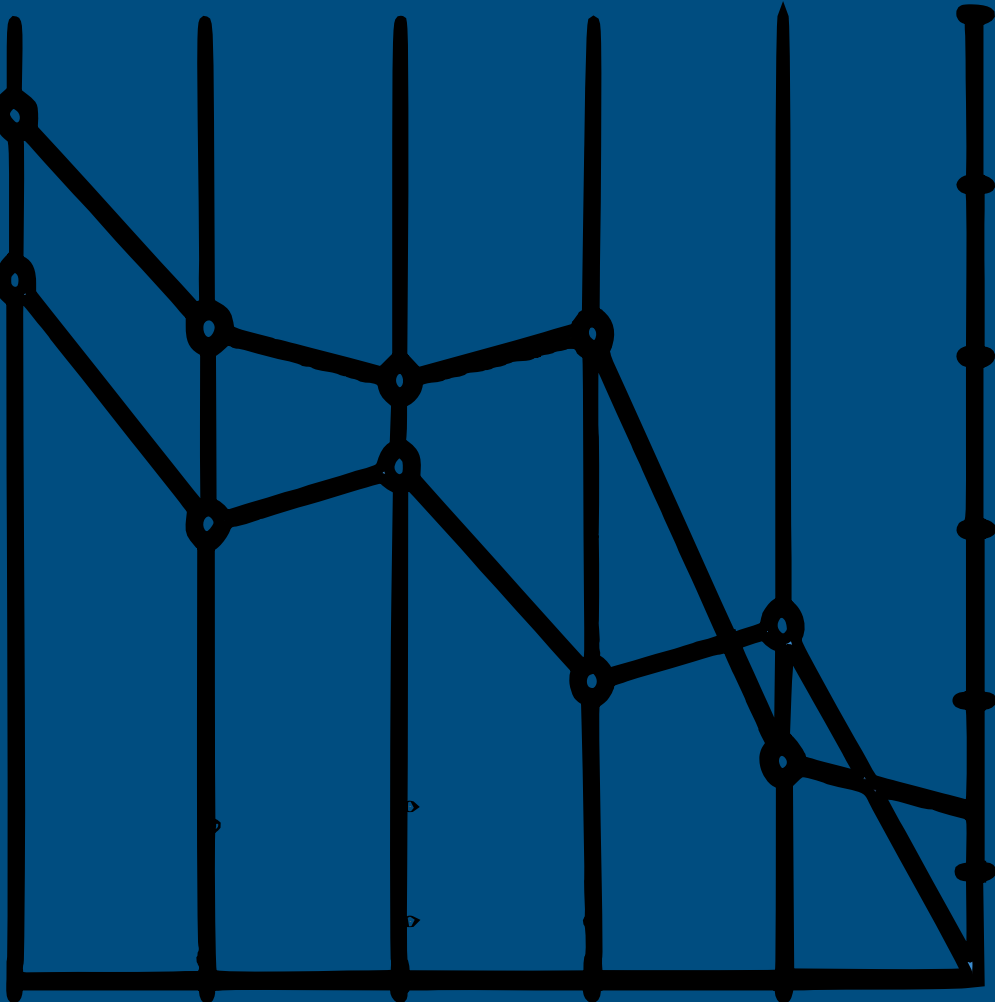
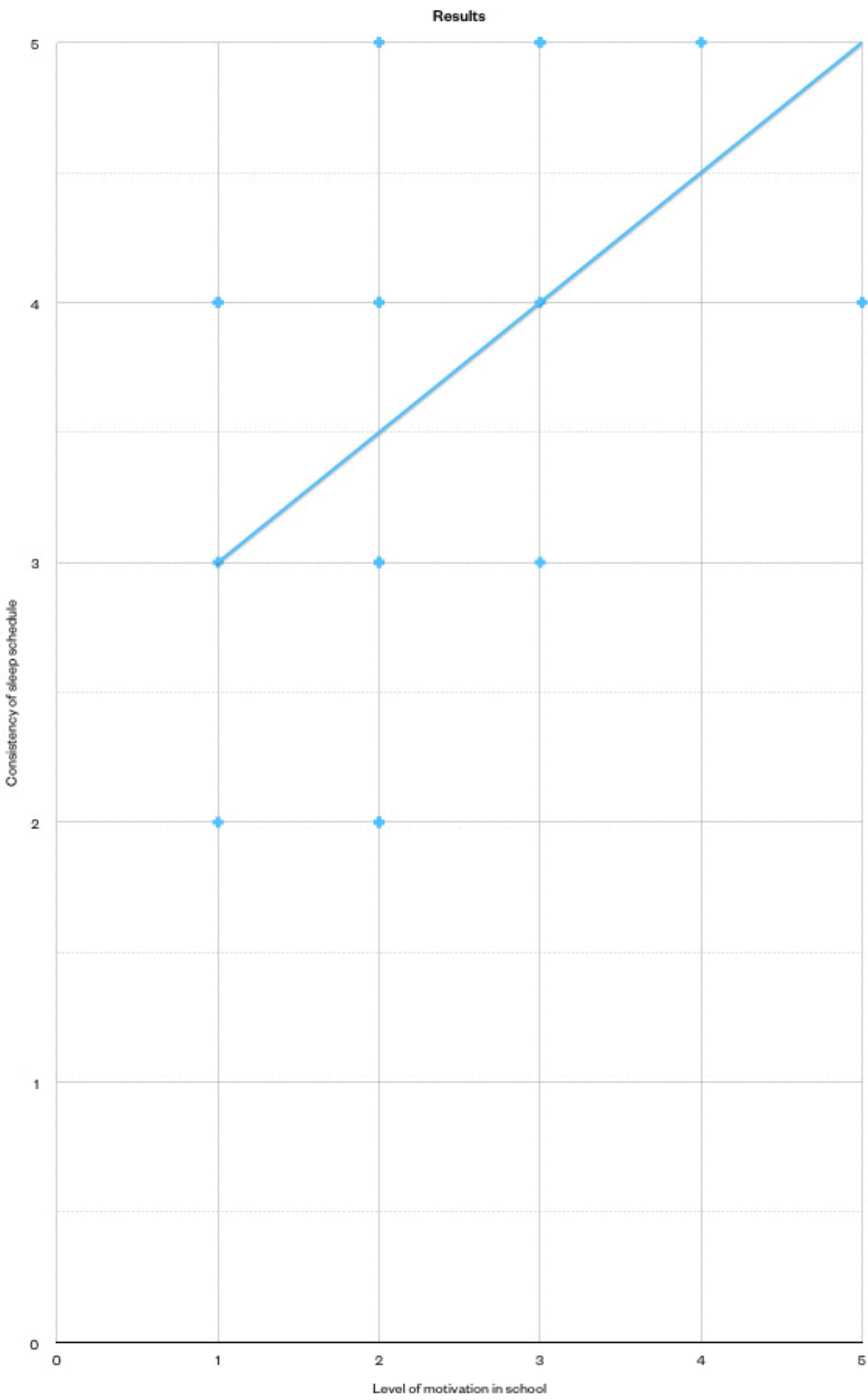
Correlation #2

Correlation : a connection or relationship between two or more things that may not directly cause each other

Survey Data Questions Used:

- How motivated do you feel in school? (1-5)
- How would you rate (1-5) the level of sleepiness you feel during the day?

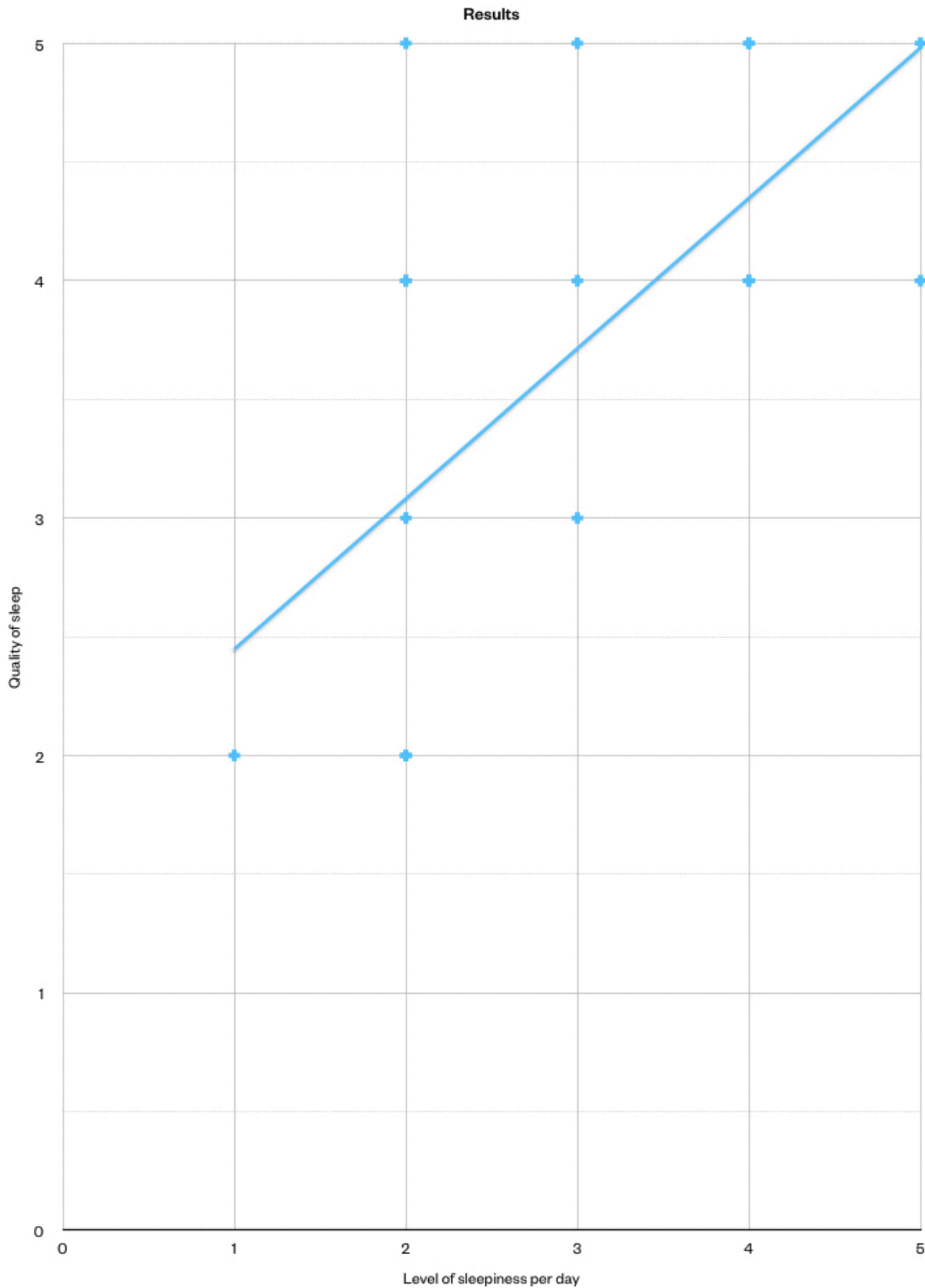
Survey Submission #	Level of sleepiness during the day	Academically successful
1	1.0	2.0
2	1.0	2.0
3	2.0	2.0
4	3.0	5.0
5	3.0	5.0
6	3.0	4.0
7	2.0	4.0
8	2.0	4.0
9	2.0	3.0
10	2.0	2.0
11	4.0	5.0
12	2.0	5.0
13	2.0	3.0
14	2.0	3.0
15	1.0	4.0
15	5.0	4.0
16	1.0	4.0
17	1.0	3.0
18	3.0	5.0
19	2.0	4.0
20	3.0	3.0



Moderate/Weak Positive Correlation

The level of stress you feel before bed was found to correlate to staying motivated and be academically successful in school

Survey Submission #	Stress level before bed	Academically successful
1	2.0	2.0
2	1.0	2.0
3	1.0	2.0
4	4.0	5.0
5	4.0	5.0
6	4.0	4.0
7	4.0	4.0
8	2.0	4.0
9	5.0	5.0
10	2.0	2.0
11	4.0	5.0
12	2.0	5.0
13	5.0	4.0
14	2.0	3.0
15	2.0	4.0
15	3.0	4.0
16	4.0	4.0
17	2.0	2.0
18	3.0	5.0
19	4.0	4.0
20	3.0	3.0



Correlation #3

Correlation : a connection or relationship between two or more things that may not directly cause each other

Survey Data Questions Used:

- How would you rate (1-5) the stress level you feel before bed?
- Do you feel that you are academically successful in school? (1-5)



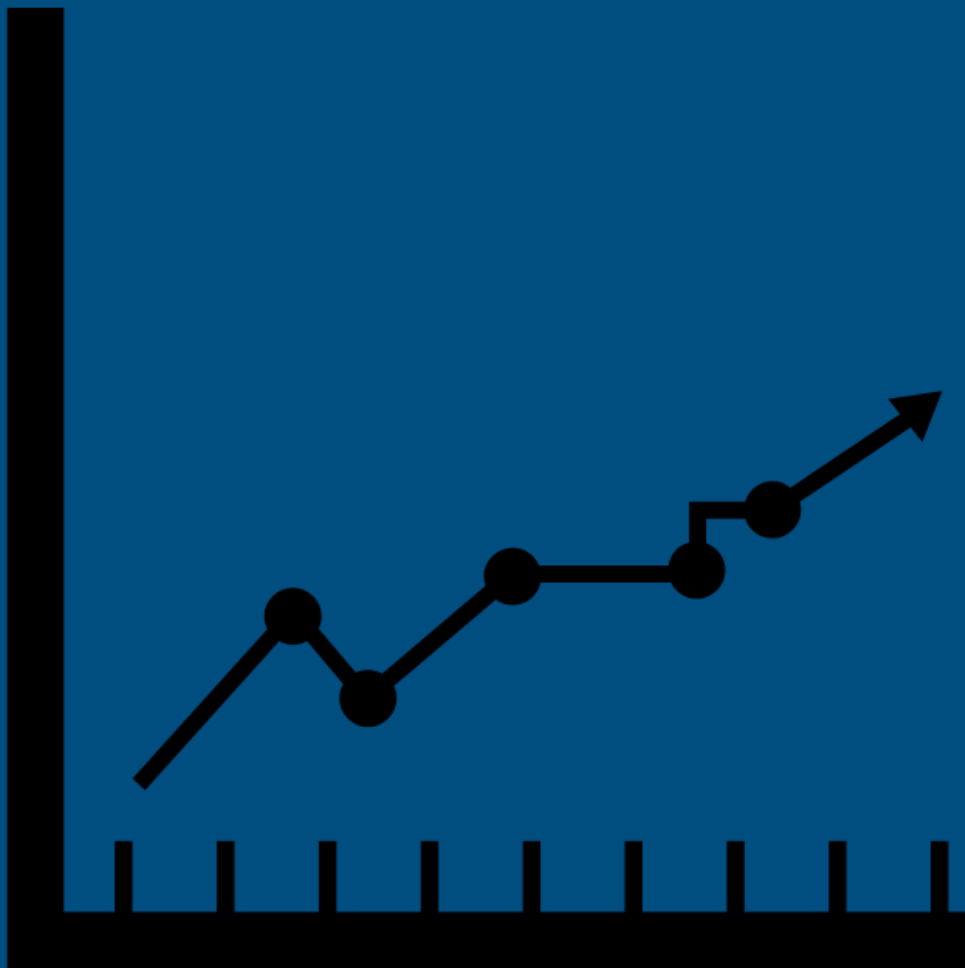
Moderate Positive Correlation

Causation

Causation : when something is proven to directly cause an event or change

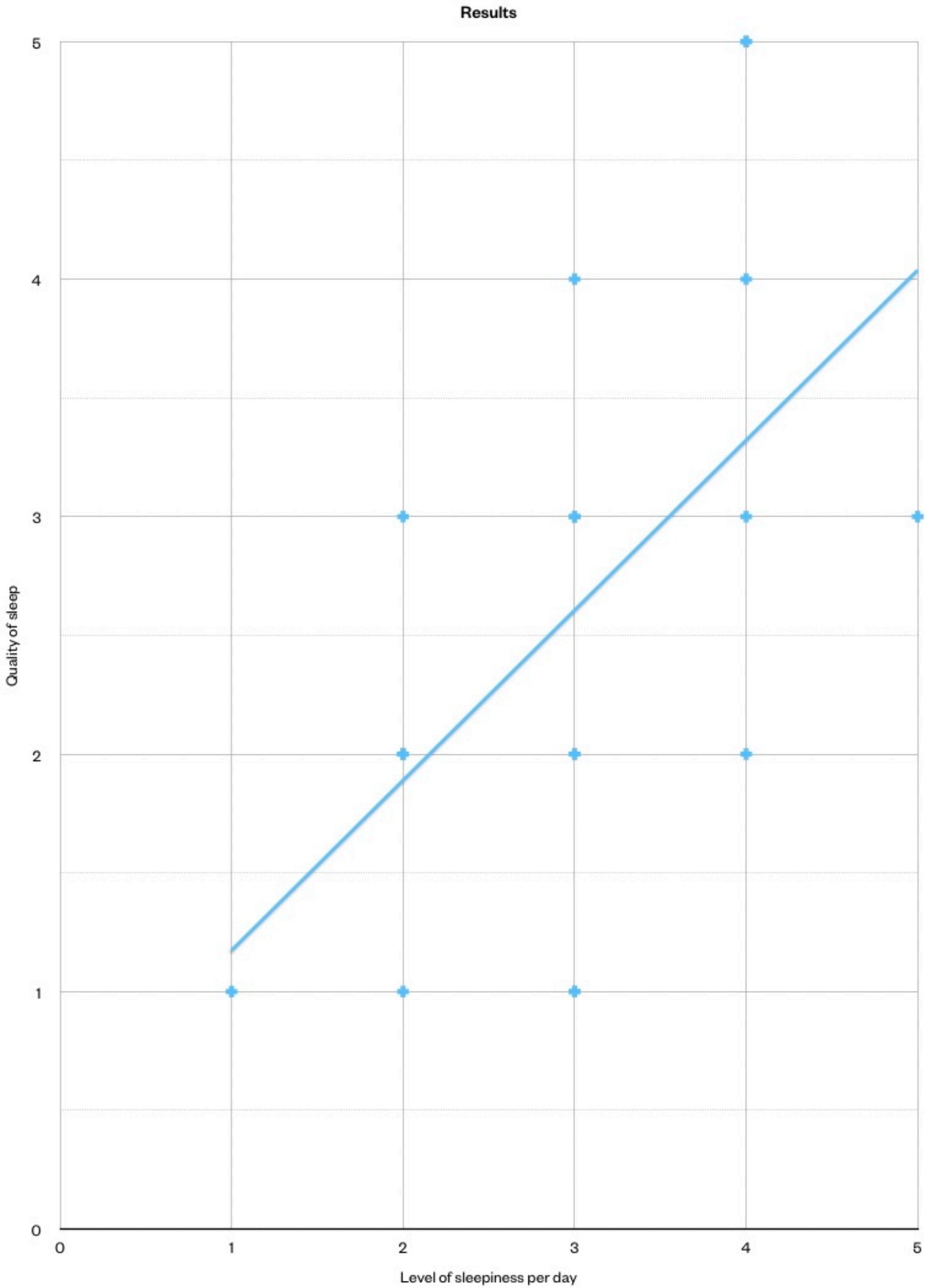
Survey Data Questions Used:

- How would you rate (1-5) your quality of sleep per week?
- How would you rate (1-5) the level of sleepiness you feel during the day?



Better or worse quality of sleep causes the level of sleepiness you feel per day

Survey Submission #	Quality of sleep in a week	Level of sleepiness during the day
1	3.0	1.0
2	1.0	1.0
3	2.0	2.0
4	2.0	3.0
5	4.0	4.0
6	4.0	3.0
7	3.0	4.0
8	4.0	2.0
9	3.0	3.0
10	2.0	2.0
11	4.0	5.0
12	2.0	2.0
13	2.0	2.0
14	3.0	2.0
15	3.0	1.0
15	4.0	5.0
16	2.0	1.0
17	5.0	3.0
18	3.0	3.0
19	3.0	2.0
20	3.0	3.0



Conclusion

Overall, we did not find any strong correlations in our survey results. We believe that our survey data would be more accurate if more students would have chosen to fill it out. It was very interesting to see the strong differences between students in different grades as well as to see how sleep schedules differ between students.

A correlation between two things does not necessarily mean that one thing causes the other. Just because two things are related to each other, or is affected by each other, does not mean that it is a direct cause of it. A correlation between two things can easily be found, and often has multiple variables that play into the fact that they are connected. However, two things that cause each other must be proven, and can be difficult to identify.

