

# Project Erasmus+

Particulate matter



## Introduction

We went to Germany, Essen-Steele, to be part of an exchange program between our school (Castor College) and the Carl-Humann-Gymnasium Essen. We went to their school first and later they'll come to our school. We'll do research near the school about particulate matter.

## Main question

- What is the difference between the air quality on the roads in Essen-Steele or in Beverwijk/Heemskerk?

## Hypothesis

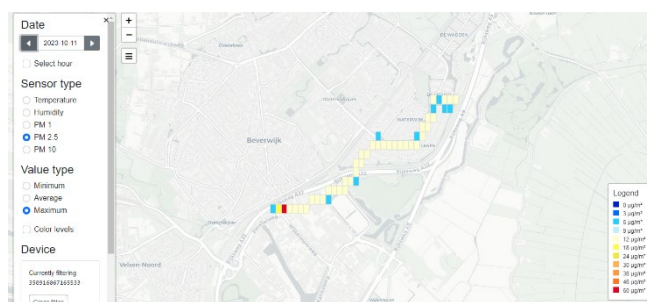
We're thinking that the air quality in Essen-Steele is better compared to Heemskerk. We think so, because Heemskerk lays close to a big highway. Furthermore, Heemskerk lays close to a big fabric (Tata Steel) and a beach, which means it will be more windy there. In Essen-Steele, the fabrics have closed already and it's less windy compared to Heemskerk.

## Research plan

We'll walk around the city and check multiple points (busy roads, less busy roads and parks). We'll measure the air and check the particulate matter. The walk will take around 1,5 hour and we'll walk a distance of 8 kilometres.

After the walk, we'll come back to the school and analyse the measured data. We'll determine the air quality in Essen-Steele.

## Measurements



### The Netherlands, Heemskerk

- Busy roads (A22)
- Close to a highway (A9)
- Industry (Tata Steel)
- Wind from the sea (warm and from industry)



## Germany, Essen-Steele

- Busy road (Henglerstraße and Steeler Straße)
- Not close to a highway
- No industry
- Windless

You can see from the data that there's less particulate matter in Essen compared to Heemskerk. This is because there's less traffic and less wind. Furthermore, there's also less industry and the city doesn't lay around a big highway.

## Conclusion

As conclusion, we can say that the air quality in Essen is way better than in Heemskerk. We can see that there's less particulate matter. There's less traffic in Essen-Steele, not close to a highway and also, there's no industry. In Heemskerk however, there's a lot of traffic, close to a highway and a lot of wind and industry. Because of those factors, Heemskerk has a lot more particulate matter.

## New main question

Since we got our answer on the main question, we can analyse it again. We saw that there's less particulate matter in Essen, because there's less traffic (not a highway close to the city). However, we did cross a lot of traffic, so we find it strange that we didn't measure a lot of particulate matter. So, as a new main question, we can ask ourselves:

- What in our surroundings can have effect on the differences between the measurements in the Netherlands (Heemskerk) and Germany (Essen-Steele).

## Reflection

We thought it was a very fun project to carry out. We learned a lot about measuring particulate matter, but especially how much particulate matter is in the air there, compared to here in the Netherlands. It was also very interesting to do such a project with German students. However, this could have been organized a little better, so that the German students would also help a little more with the reports.