# CLIMATE DETECTIVES 2020 – 2021

## CLIMATE CHANGE IN PANDEMIC TIME

I detective della 3E
IC Via Latina, 303

## RESEARCH QUESTION

**What is the pollution rate in our city and how much does it influence our lives? What can we do to improve our life conditions?**

## SUMMARY OF PROJECT

We live in Rome, a beautiful, large and crowded city in the center of Italy.
We started this project driven by the curiosity to find out how much the air we breathe every day is contaminated by pollution and how much pollution can damage both the environment and ourselves.
We started analyzing the air quality in Rome thanks to the local Regional Agency for Environmental Protection (ARPA) that makes data on air quality freely accessible. We analyzed the trend of Benzene, Carbon Monoxide and Particulate Matter in the last 20 years in our residential district.
Our graphs clearly show that the presence of the analyzed pollutant content had a dramatic decrease in the first ten years of this century, most probably thanks to the first ecological political choices of the town Council (such as reduction of emissions of pollutants from vehicle), though not to the extent required. From 2010 on, instead, the polluting content has remained practically unchanged.
How much does air pollution harm us? Several infections and respiratory diseases such as bronchitis, ischemic heart disease, episodes of shortness of breath and even premature deaths are caused by pollution factors.
The most vulnerable ones are kids and children because during childhood metabolic processes are accelerated. Furthermore, having a shorter stature, they are constantly breathing closer to the ground, where the pollutant concentration is higher.
Therefore, high air pollution rate must be feared, because it can harm us, but it can also damage our plants and our architectural and historical monuments.

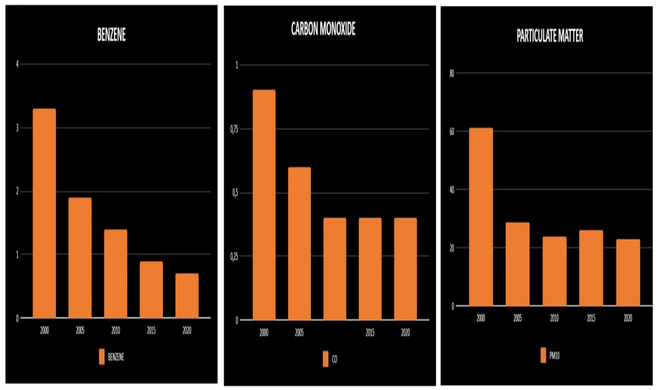



**Figure 1:** Benzene, Carbon Monoxide and Particulate matter concentration from 2000 to 2020

## MAIN RESULTS

After our first data analysis, we have seen, as expected, that Rome is a polluted city and that from 2010 the polluting content has not decreased at all.
During last year something special happened: car and airplane traffic was drastically reduced because of the lock-down due to the COVID-19 pandemic sanitary emergency that forced everybody to stay indoors.
To verify whether the lock-down did positively affect air quality, we analyzed air quality monthly trends within 2020. As shown in the three attached graphs, the concentrations of Benzene, Carbon Monoxide and PM10, which are among the highest pollutants in our area, have dramatically dropped between February and June 2020. Even if monthly changes are observed every year, such trends are much stronger than usual.
Therefore, even if on a global scale the effects of the lock-down have not been measurable, the car and airplane traffic reduction has had an immediate positive impact on a local scale and specifically on the quality of the air in Rome.
Unfortunately, in the last few months of 2020 and in the beginning of 2021 the pollution has started to increase again due to the reduction of the quarantine.
We hence believe that some changes in our daily habits can be successful in our fight against pollution. Our ecological fight must start from simple gestures, such as reducing the use of private cars in favor of public transportation, bicycles and our own legs. Now it is the time to take action to save our city before it's too late.

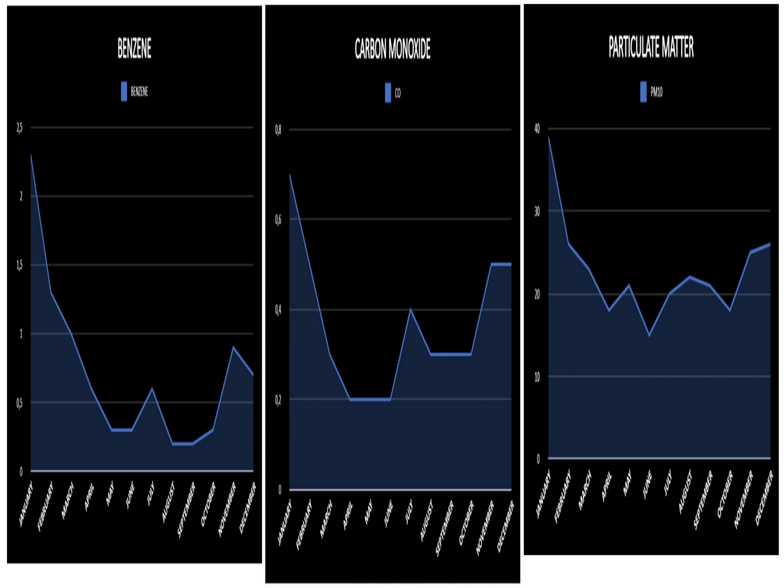



**Figure 2:** Benzene, Carbon Monoxide and Particulate matter concentration across 2020

## ACTIONS TO HELP LESSEN TO THE PROBLEM



**Figure 3:** Marco and Mattia with our Arianna flower pot

Our school is located near the Caffarella park, one of the largest green area in Rome. We therefore started wondering whether spending as much time as possible around a green area can help us and effectively improve the quality of the air we breathe.
By chance, in March 2021 we heard about the Wiseair project on the national news. Wiseair is a young Italian startup that has developed an air quality sensor. The sensor monitors the air quality 24 hours a day and, with a simple application, makes data accessible to everybody. Wiseair installed this sensor in flower pots named “Arianna” and started freely distributing “Arianna” flower pots to citizens and associations who are ready to help to measure and monitor air pollution all over our country.
Having common ideals and goals, we applied for one “Arianna”. In the beginning of April 2021 we were selected as Wiseair ambassadors and our school received the “Arianna” flower pot.
Our Arianna is now located close to our school, near the Caffarella park. Thanks to Arianna in the coming months students and teachers in our school will be able to monitor the air pollution in our neighborhood and will hopefully be able to take concrete actions to reduce air pollution in our cities.