INITIATING BEHAVIORAL CHANGE TOWARDS CLEANER AIR

IDEAS ON ADDRESSING AIR POLLUTION IN ELEMENTARY AND HIGH SCHOOL - FROM THE YOUTH'S PERSPECTIVE

WORKSHOP IN THE GREENSCENT YOUTH ASSEMBLIES, MAY 2023

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THE REPORT INCLUDES

INTRODUCTION

In early May, our Youth Assemblies convened for the fourth time, continuing the GreenSCENT journey towards a more sustainable future.

The Youth Assembly directed its attention on Clean Air, emphasizing the integration of real-life data and knowledge tools into the GreenSCENT educational framework. This approach aimed to cultivate critical skills, expand knowledge, and incite behavioral change through firsthand experiences and active engagement within both Elementary and High School settings.

There were 38 participants, aged between 14-25 and from Italy, Spain, Greece, Finland, Serbia, Romania and Denmark.

OBJECTIVES: EMPOWERING EDUCATION ON AIR POLLUTION

The workshop aimed to develop ideas to inspire teaching about air pollution in both Elementary and High School settings. Representatives from CleanAir@School and professionals from Greece joined the brainstorming session, offering valuable insights and presentations on air pollution together with an educational tool measuring air quality. This collaborative workshop fostered engaging discussions and knowledge exchange among the Assembly members and professionals.

Furthermore, our young participants were invited to provide feedback on the tool utilized for measuring air pollution in school, which involved using a specialized tube and an accompanying app. This interactive session encouraged participants to contribute to the refinement and enhancement of these teaching resources.

The tools was later used and tested by some of our Youth Assenbly participants on a in-person meeting in Barcelona.

THE WORKSHOP PROCESS

1

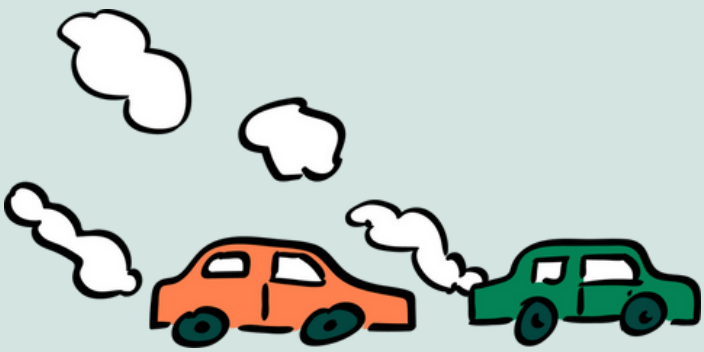
Presenting air pollution: The workchop was initiated by an insightful presentation by Jaume Targa from CleanAir@School, focusing on Air Pollution. Participants was presented to air-polluting particles, the underlying causes of air pollution, and its profound impact on our health and well-being. The information presented was both intriguing and alarming, emphasizing the urgent need to confront the significant challenge posed by Air Pollution.

2

Simulating air quality measurements: Participants used the CleanAir@School app and simulated air tube measurements to gauge local street pollution. The ease with which the youth embraced the app showcased its user-friendly design and Jaume's effective guidance. Post-exercise, participants shared feedback on the activity, expert presentation, and app usability. Their input, both positive and constructive, offers valuable insights for improving CleanAir@School's app and educational program

3

Creating ideas on how to adress air polution in school: As the session progressed, we asked the young participants to create practical teaching ideas about air pollution and measuring local air quality. These modules aimed to facilitate the teaching of air pollution concepts and the practical measurement of local air pollution levels. The participants' ideas were quite impressive. Some need more work, while others are ready for teachers to use right away.



25+ IDEAS TO EDUCATE AND EMPOWER: TEACHING YOUTH ABOUT AIR POLLUTION FOR A CLEANER FUTURE

This resource is designed to inspire educators and school teachers by showcasing the diverse ideas contributed by the young participants.

During the Youth Assemblies 4th workshop, participants generated more than 25 ideas for educators to craft compelling and engaging educational activities that foster behavioral change while teaching young individuals about Air Pollution. The collected ideas can inspire the CleanAir@School team, elementary and high school teachers, and professionals in educating and empowering their students to make changes that enhance air quality.

We strongly encourage teachers to incorporate the ideas presented in this report or to encourage their students to generate ideas on how they like to learn about issues like clean air and other green skills. It's vital for educators to find inspiration in what young people perceive as good teaching. By drawing from the youth's perspective, educators can craft engaging lessons that significantly enhance both knowledge and practical skills, enhancing the students motivation and readiness to start and engage in activities or projects for a cleaner future.

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“Active learning makes it easier to engage and motivate students to learn. Easier to retain information from activities. Students see the practical aplication of the topic. It's also useful to develop critical thinking.”

“I believe that after a bit of passive learning, doing active learning is the way the knowledge sticks in your head. Reading books and endless words is not the same as actively doing something.“

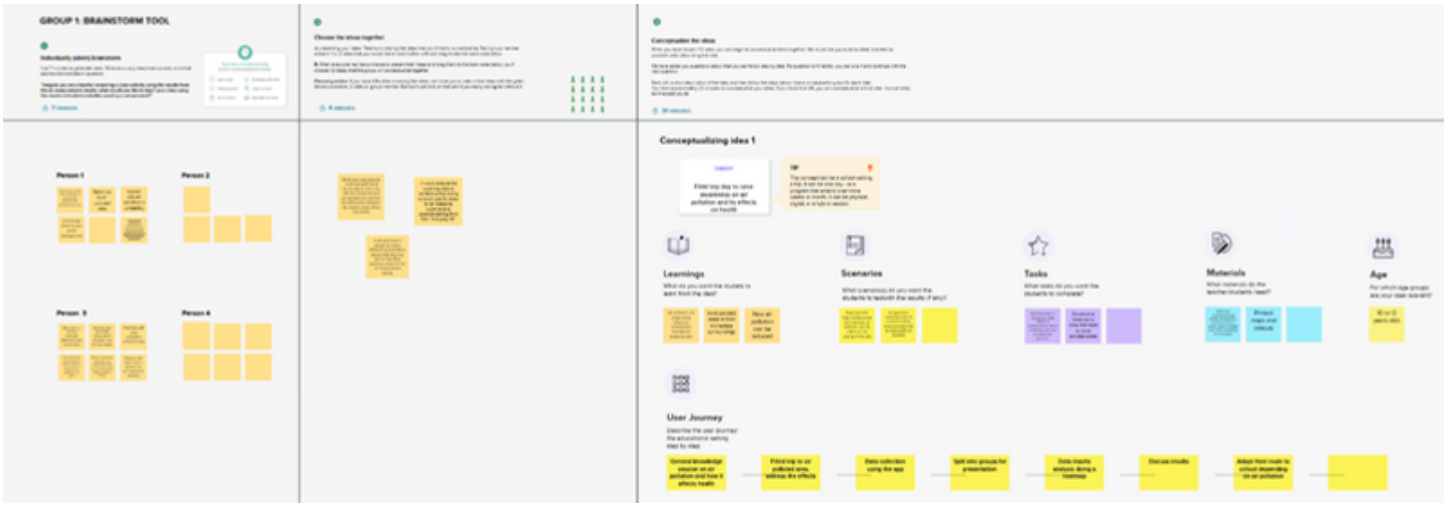
Insights from the Youth Assembly participants on the advantages of active learning

THE CREATION OF IDEAS - OUR APPROACH

During the workshop, we asked the young participants to generate practical teaching ideas related to air pollution and measuring local air quality. They were tasked with individually brainstorming ideas and collaboratively conceptualizing them into practical plans. Additionally, they were prompted to reflect on the skills these ideas would enhance, identify required materials, and develop a step-by-step introduction for the proposed concepts.

The ideas put forth by the youth have been gathered and categorized thematically. Several groups had formulated similar concepts, which were merged together to craft a cohesive idea catalog. The text for the ideas was written by the participants on post-it notes. To create a cohesive picture of the ideas, the text has been edited by project leaders from DBT, while respecting the origin of the ideas.

Read the youth's ideas in the upcoming section.



Screenshot from Mural, displaying how the participants brainstormed and developed their ideas and concepts.

ON THE FOLLOWING PAGES YOU CAN READ ALL THE IDEAS PROPOSED BY THE YOUTH!

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FIELD TRIPS: ENGAGING ACTIVITIES AND HANDS-ON LEARNING FOR DIFFERENT AGE GROUPS

LEARNING ABOUT POLLUTANTS AND HEALTH RISKS DURING FIELD TRIP

Take the students on a field trip day to raise awareness of air pollution and its health effects. Organize field trips visiting areas with severe air pollution and observe its impact in the vicinity. While on-site, divide the class into groups to investigate and later create different presentations about their observations, sharing opinions during class discussions.

After the presentations, collaborate with the class to construct a heatmap displaying pollution levels from least to most severe in the local area. Discuss health impacts and analyze their everyday route to school, aiming to make it as sustainable and free from pollutants as possible.

GUIDING STEPS IN AN EDUCATIONAL SETTING

1) Provide a general knowledge session on air pollution and how it affects health

2) Go on a field trip to air polluted area and witness the effects (take pictures, and document the findings). Use data collection with the tubes and the app

3) Split into groups for presentation

4) Data results analysis doing a heatmap

5) Discuss results

6) Adapt their route to school depending on air pollution

SKILLS

- The students will learn that air pollution can cause many effects to somebody's health (heart problems, lung problems etc.).
- Learn about the most polluted areas in their immediate surroundings.
- Learn about how they can reduce air pollution.
- Learn to construct or/and analize heat-maps

MATERIALS

- Use interactive smartboards and tablets are essential as the scanning is online, more animated thus more interesting for the youths.
- Printed maps and colours.
- Tubes and app from CleanAir@School

FIELD TRIP COMPARISSONS: ASSESSING ENVIRONMENTS AND TAKING ACTION TO REDUCE HEALTH IMPACTS

Organize an excursion for students to visit both a location with fresh, clean air and a polluted city, allowing them to compare the contrasting environments. During these visits, students can explore how specific areas, such as busy roads, correlate with different pollutants present in those surroundings. Brainstorm on structural changes or political practices that can mitigate pollution levels and act together with the class.

GUIDING STEPS IN AN EDUCATIONAL SETTING

1. Location Selection:
- Choose a location with fresh, clean air, such as a rural area, a park, or a place known for its clean environment.
- Select a polluted city or area known for high pollution levels due to traffic, industries, or other factors. Choose the locations together with the students.

2. Visits and Comparative Analysis:
- Divide the excursion into two parts: one for the clean air location and another for the polluted city.
- In both places, guide students to observe and document their surroundings, paying attention to factors like traffic density, industrial sites, green spaces, and overall cleanliness.
- Provide tools for measuring air quality where possible (e.g., portable air quality monitors) to gather empirical data on air quality differences.

3. Exploration of Pollution Sources:
- Encourage students to explore how specific areas (e.g., busy roads, industrial zones) correlate with different pollutants present in those surroundings. They can use observation, data collection, and possibly portable air quality sensors to make connections.

4. Mapping Exercise for Older Students:
- For older students comfortable with maps, engage them in creating or color-coding maps that integrate various factors related to particulate matter. This exercise helps them understand the surroundings of each area and decipher the sources of pollution.

5. Discussion and Brainstorming:
- Facilitate a discussion after the excursion where students can share their observations, data, and insights.
- Encourage brainstorming on structural changes or political practices that could mitigate pollution levels in the polluted area. This could involve discussing city planning, transportation strategies, or policies promoting cleaner energy sources.

6. Follow-Up Activities:
- Encourage students to present their findings and suggestions to the class or school administration, advocating for changes to improve air quality.
- Consider follow-up projects or assignments that allow students to delve deeper into environmental issues, possibly through research papers, presentations, or community outreach initiatives.

Skills:
This excursion not only provides firsthand experiences but also encourages critical thinking, data analysis, and proactive problem-solving related to environmental issues.

COMPLEMENTARY IDEAS FOR FIELD TRIPS

- **Visual Demonstration:** Using tangible examples like the paper demonstration with dirt/dust to represent pollution is excellent. Enhance this by incorporating simple experiments or demonstrations illustrating how pollutants affect air quality. For instance, using water and oil to simulate pollutants that don't mix well.

- **Engaging with Visuals:** Using images of pollution sources like factories, busy roads, etc., is a great visual aid. This can stimulate discussions about the types of pollutants emitted by each source and their associated health risks.

- **Pre- and Post-Trip Discussions:** Before the trip, introduce the concept of air pollution, its effects, and different pollutants. Post-trip, revisit this discussion to reflect on what they observed and experienced, reinforcing their learning. Consider incorporating group discussions or debates where students can express their opinions on how to reduce pollution or advocate for cleaner environments. Encourage them to propose small actions or changes they can make to contribute to a healthier environment, fostering a sense of responsibility.

- **Quiz-time:** Following the field trip and discussions, students get a Kahoot or quiz session designed to assess their comprehension and retention of air pollution. The quiz will cover the key points and concepts learned during the trips and conversation.

- **Data Collection and Laboratory Work for older students:** Engaging high school students in collecting real-time data using the Clean Air@School app and tubes during field trips provides them with hands-on experience. Furthering this with laboratory work, such as analyzing the collected data or conducting experiments related to air pollution, adds depth to their understanding.

These activities not only foster understanding but also empower students to become more informed and proactive in addressing environmental issues like air pollution

> *It's evident that the participants are experienced in collaborating and generating ideas for GreenSCENT's education program. The level of difficulty continues to rise, yet the participants impress even more each time.*

Ida Skov Nielsen, Project leader

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EXPLORING AIR POLLUTION THROUGH INTERACTIVE GAMES AND COMPETITIONS

INTERACTIVE GAME: MAPPING AIR POLLUTION LEVELS FOR REAL-LIFE LEARNING

Based on the students knowledge about air pollution, students will identify areas with varying pollution levels on a map of their local area. The students mark locations they believe have high or low air pollution levels based on their understanding. For each selected location, students will explain the reasons behind elevated pollution in those areas. Correctly identifying and justifying areas with high pollution earns points to the group. This game fosters a blend of local knowledge and classroom learning, encouraging students to apply their understanding of air pollution to real-life scenarios in their community.

GUIDING STEPS IN AN EDUCATIONAL SETTING

- **Short introductory video:** Play a brief video introducing the topic of air pollution. This video should provide a general overview and capture students' attention.
- **Group discussions:** Divide students into small groups for discussions. Encourage them to share their initial thoughts, questions, or observations about air pollution based on the video.
- **Competition Time:** Conduct the competition where the students study a map and guess locations with high or low air pollution readings. They identify daily spots prone to pollution and explain the causes behind heightened pollution in those areas for scoring points.
- **Group discussion on solutions:** Engage students in group discussions about practical ways to reduce air pollution on both individual and school levels. Encourage brainstorming and sharing ideas on initiatives or changes that can make a difference.
- **Future exploration:** Introduce the concept of a class trip in the future to witness firsthand how air pollution is being addressed in their city. Mention potential sites like solar panel installations, electric car factories, wind farms, air purification systems, etc. This sets the stage for future experiential learning and reinforces the importance of addressing pollution.

This approach combines learning through multimedia, discussions, assessments, and real-world exposure, allowing students to engage with the topic of air pollution comprehensively.

THE GAME OF DILEMMAS: CAR OR BIKE?

We live in a busy society where we have to get to school, attend part-time jobs, see our friends, and wear the right clothes. But how does that align with living a more climate-conscious life, where we need to reduce our carbon footprint and minimize air pollution? The game of dilemmas might answer that question!

In the game of dilemmas, the students play together in groups, collaborating to achieve a cleaner future. They move on a map, facing dilemmas using action cards like: 'Running late: Take the car or bike?' or 'Need a new jacket: Buy new or visit a recycling store map, facing dilemmas using action cards like: 'Running late: Take the car or bike?' or 'Need a new jacket: Buy new or visit a recycling store?'?'

Be aware that choosing the cleanest option might reduce the time available for other tasks that day!

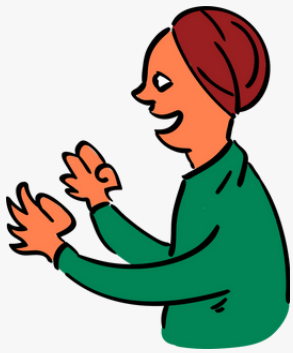
Each group has a set number of hours to accomplish their agenda for the day (e.g., meeting a friend, buying a jacket, purchasing groceries for dinner, working at their part time job and doing their homework). Simultaneously, they collect points for making sustainable choices and lose points for less sustainable ones. After the game, they measure their pollution by counting points

Working together, they aim to reduce pollution. If they run out of their game-hours before completing the game, they'll lose.

Win or lose, it's a group effort toward cleaner air!

GUIDING STEPS IN AN EDUCATIONAL SETTING

- **Introducing and preparing for the game:** Teachers introduce information about global warming, emissions, and pollution. Students research local pollution and create a map showing streets, transportation methods, and stores. They introduce the game.
- **Play the game:** The students play the game in groups, collaborating to achieve a cleaner future. The group with most points after the game wins.
- **Group discussion on individual change:** Engage students in group discussions about practical ways to reduce their air pollution and carbon footprint on both individual and school levels. Discuss the dilemmas they face in their daily life. Encourage brainstorming and sharing ideas on initiatives or changes that can make a difference.



This game was proposed by Sandi Hamou from Denmark. It doesn't exist yet, but we hope that educators or enthusiastic students who are excited about the idea will attempt to create a game.

EMPOWERING CLASSROOM EDUCATION: ADDRESSING AIR POLLUTION THROUGH ACTION

Our young participants value thorough guidance from their teachers as they delve into their studies. Here are some suggestions on what a teacher can cover in an air pollution presentation and how the class can actively engage with the topic. It's crucial that the knowledge gained translates into action for the youth. Hence, teaching should involve them in addressing local air pollution issues.

Encourage brainstorming sessions with students on how they can take action; they might have insightful ideas!

GUIDING STEPS IN AN EDUCATIONAL SETTING

1. Understanding Environmental Problems:
- Explain the basics of air pollution to students.
- Identify the primary causes of air pollution and highlight their effects.
- Explore statistical data on preventive measures against air pollution.
- Discuss various methods to improve the current environmental situation.

2. Engage Through a Friendly Challenge:
- Introduce a friendly challenge where students predict the cleanest or dirtiest areas and provide explanations.
- This can for example include a competitive activity with points awarded for correct answers to enhance motivation. (if the class is into competitions)

3. Home Air Quality Testing:
- Distribute test tubes to each student for placement close to their homes, ensuring coverage across a wide area.
- Instruct students to identify air constituents, correctly name them, and determine their respective percentages.

4. Problem-Solving Collaboration:
- Collaborate with students to devise strategies for improving air quality in the studied area.
- Encourage ideas such as initiating fundraising campaigns to raise awareness and address specific environmental concerns.

This classroom approach allows students to systematically delve into environmental issues, engage in interactive challenges, conduct practical air quality testing, and actively participate in finding solutions for a cleaner environment.

A special thanks to all participants in the GreenSCENT Youth Assemblies for engaging in developing ideas and sharing reflections and insights on how empower and educate students on clean air and air pollution in a motivating way.

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