



REGREEN
NATURE-BASED SOLUTIONS

Fostering nature-based solutions for smart, green and
healthy urban transitions in Europe and China

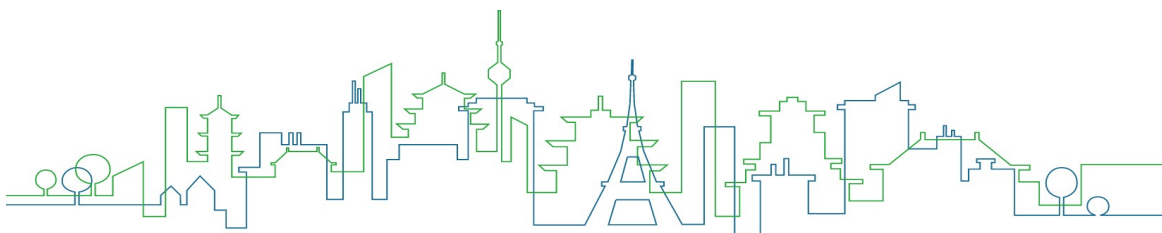


WP N°5 Education, Participation and Awareness

**IN-CLASS TRIALS OF DIGITAL EDUCATIONAL PLATFORM,
GREENOPOLIS, IN SCHOOLS IN VELIKA GORICA, CROATIA
AND IN PARIS REGION, FRANCE**

Authors: **Mara SIERRA-JIMENEZ (AU/DPU)**, **Sally ANDERSON (AU/DPU)**

May, 2023, Copenhagen



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no.821016 This document reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.

Copyright Statement

The work described in this document has been conducted within the REGREEN project. This document reflects only the REGREEN Consortium view and the European Union is not responsible for any use that may be made of the information it contains.

This document and its content are the property of the REGREEN Consortium. All rights relevant to this document are determined by the applicable laws. Access to this document does not grant any right or license on the document or its contents. This document or its contents are not to be used or treated in any manner inconsistent with the rights or interests of the REGREEN Consortium or the Partners detriment and are not to be disclosed externally without prior written consent from the REGREEN Partners.

Each REGREEN Partner may use this document in conformity with the REGREEN Consortium Grant Agreement provisions.

Suggested citation: Sierra-Jimenez, M., Anderson, S. (2023) In-class trials of digital educational platform, GREENOPOLIS, in schools in Velika Gorica, Croatia, and in Paris Region, France. REGREEN - Fostering nature-based solutions for smart, green and healthy urban transitions in Europe and China. Horizon2020 Grant No. 821016. DOI: 10.5281/zenodo.10572350



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no.821016 This document reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.

TABLE OF CONTENTS

1	INTRODUCTION.....	2
2	PRESENTATION OF THE DIGITAL EDUCATIONAL PLATFORM GREENOPOLIS	3
2.1	AIM	3
2.2	FOR TEACHERS.....	3
3	OBJECTIVES AND EXPLORATORY FIELDS AROUND THE GREENOPOLIS PLATFORM.....	4
4	CONTEXT AND TESTING IN SCHOOLS IN VELIKA GORICA - CROATIA.....	5
4.1	NOVO ČIČE SCHOOL.....	6
4.2	RAKITOVEČ SCHOOL	7
4.3	EUGEN KUMIČIĆ SCHOOL.....	9
5	CONTEXT AND REALIZATION OF TRIALS IN SCHOOLS OF THE PARIS REGION, FRANCE ...	10
5.1	ARGENTEUIL ELEMENTARY SCHOOL	11
5.2	EMILE ZOLA COLLÈGE SCHOOL	11
6	RESULTS AND POINTS FOR IMPROVEMENT	12
6.1	HOW TEACHERS FROM DIFFERENT DISCIPLINES AND GRADE LEVELS APPROPRIATE THE GREENOPOLIS PLATFORM IN THEIR CLASSROOMS.....	12
6.2	STUDENTS' REACTIONS IN SITU, THEIR PARTICIPATION AND THEIR APPROPRIATION OF THE TOOL DURING ITS PRESENTATION AND THE ACTIVITIES PROPOSED BY THEIR TEACHERS	12
6.3	GREENOPOLIS PLATFORM STENGHTS AND AREAS FOR IMPROVEMENT	13
ANNEX 1.	REPONSES-STUDENTS-GREENOPOLIS-NOVO CICE-3	14
ANNEX 2.	REPONSES-TEACHER-GREENOPOLIS-NOVO CICE-3	17
ANNEX 3.	REPONSES-STUDENTS-GREENOPOLIS-RAKITOVEC- 4.....	19
ANNEX 4.	REPONSES-TEACHERS-1-GREENOPOLIS-RAKITOVEC- 4	22
ANNEX 5.	REPONSES-TEACHER2-GREENOPOLIS-RAKITOVEC- 4	24
ANNEX 6.	REPONSES-STUDENTS-GREENOPOLIS- EUGENA KOMICICA-7.....	26

1 INTRODUCTION

Greenopolis is an interactive educational tool for learning about sustainable urban development and nature-based solutions. Targeting schoolchildren aged 8-12, Greenopolis was developed by REGREEN partner, INTUGREEN. The educational material includes a digital platform and a set of exercises to be used to explore the local natural environment.

In September 2021, INTUGREEN partners, Stine Casparij Kondrup and Marie Yvonne Dahlfelt carried out two trials of a French-language alpha version of the platform in a Parisian college 6ème class (age 10-12) and in an elementary school class (age 7-9).

This report focuses on trials of the Croatian-language version carried out in schools in Croatia in April 2023. It is the result of fieldwork carried out by a WP5 team, Sally Anderson, Jeppe Læssøe, Gertrude Lynge Esbensen and Mara Sierra-Jimenez, in the town of Velika Gorica between April 24 and 28, 2023.

After several meetings with city planners, school principals and teachers, the WP5 team succeeded in launching exploratory trials of educational tools for nature education and nature-based solutions developed in the EU Horizons project, REGREEN. The April visit to Velika Gorica enabled the team to get direct feedback on the use of these tools from teachers and students in various schools throughout the municipality.

Mara Sierra-Jimenez was in charge of classroom trials of Greenopolis in Croatia. Unlike other educational tools developed by WP5, for example, walkable floorplans and Field E-books, already deployed in Croatian schools, the Greenopolis trials were planned and prepared in the weeks preceding the visit to Croatia. Despite this short preparation time, we received positive responses from three schools to carry out in-class trials with different grade levels and age groups. However, as discussed below, the lack of time to prepare and coordinate the Greenopolis trials may have had some impact on how the tool was presented to the class by teachers and how activities proposed to students were carried out.

Classroom observation and informal discussions with teachers and students in both France and Croatia have provided relevant material for assessing the different ways in which trial participants appropriated the Greenopolis digital platform. We were able to identify 1) those age groups most likely to value and take full advantage of this educational tool, 2) teacher motivation for continuing to explore the topics proposed on the platform, and 3) improvements needed to ensure better understanding and appropriation of the educational content aimed at raising awareness of the challenges of biodiversity and nature-based solutions for designing cities of tomorrow.

2 PRESENTATION OF THE DIGITAL EDUCATIONAL PLATFORM GREENOPOLIS



<https://greenopolis.regreen-project.eu/about-greenopolis/>

Greenopolis is a digital educational platform for teaching and learning about sustainable urban development, climate adaptation and nature-based solutions. Greenopolis was developed by REGREEN partner **INTUGREEN** (<https://www.intugreen.dk>) in cooperation with teachers, researchers, schools, and partners of the REGREEN research project. (See also D5.2 <https://www.regreen-project.eu/wp-content/uploads/REGREEN-D5.2-Implementation-of-the-educational-digital-platform.pdf>)

2.1 Aim

The digital educational platform, Greenopolis, aims to draw attention to the advantages of urban nature-based solutions to particular climate change challenges related to heat, water, air and biodiversity. Greenopolis introduces an array of nature-based solutions that can be used to efficiently prevent and limit these challenges. Exercises and activities included in the educational platform expressly aim to inspire pupils to explore the concept of nature-based solutions (NBS), to explore their municipalities for climate-related challenges, to discover how NBS are actively being used – or not – and to find ways to take action within their own city and neighborhoods.

2.2 For teachers

Through Greenopolis, pupils gain a basic understanding of how nature-based solutions may help create resilient cities. The digital platform provides informative animations, hands-on exercises and activities that bring nature into the classroom and bring the pupils out into nature. The digital content is structured around different themes. The first theme introduces pupils to concepts such as biodiversity, ecosystems, ecosystem services, climate change and sustainable urban development. Each following theme treats one climate challenge and introduces relevant examples of nature-based solutions to deal with this specific challenge:

A Diverse City – about solutions to increase the level of biodiversity in the cities

The Sound of City – about solutions to limit noise pollution

Hot City – about solutions to mitigate heat islands

Urban Wetlands – about solutions to prevent flooding caused by cloudbursts

Clean Air in the City – about solutions to limit air pollution

3 OBJECTIVES AND EXPLORATORY FIELDS AROUND THE GREENOPOLIS PLATFORM

Field trials were carried out in three schools in the town of Velika Gorica, Croatia (Table 1). Three grade levels participated in the Greenopolis platform test. The age of the students ranged from 9 to 14 years, which enabled us to see interesting age-related differences in the reception of the tool.

In France, two schools worked with Greenopolis. These schools also participated in testing the Vigie-Nature Ecole citizen sciences protocols for the Paris National Museum of Natural History, a REGREEN partner in Ile-de-France. Thanks to these two sites, we can compare the reception of Greenopolis among students age 7 and 14.

Table 1: Schools in Croatia – Velika Gorica

School name Velika Gorica - Croatia	Class level	Age of students	Number of participants
Novo Čiče school	3	9-10 years old	19
Rakitovec school	4	10-11 years old	15
Eugen Kumičić school	7	13-14 years old	26

Table 2: Schools in Paris, France – Île-de-France

School name Île-de-France – Paris, France	Class level	Age of students	Number of participants
Argenteuil primary school	CP	7-9 years old	16
Collège Emile Zola	6	10-12 years old	15

The main field objectives were:

- To understand how teachers from different disciplines and school levels appropriate the Greenopolis teaching tool in their classrooms
- To observe student reactions *in situ*, their participation and their appropriation of the tool during its presentation and the activities proposed by their teachers
- To identify the strengths as well as areas for improvement of the Greenopolis platform, based on quantitative and qualitative data collected from teachers and students of various grades and ages.

To provide more precise information on students' and teachers' assessments of their educational experience with the Greenopolis platform, we proposed a short questionnaire with multiple-choice and open-ended questions at the end of the activity. (See part 3)

For students, ten questions were asked:

- *What environmental theme did you work on with the Greenopolis platform?*
- *What did you think of the content of Greenopolis to work on this theme?*
- *Did you enjoy working with Greenopolis to understand the challenges of tomorrow's cities?*
- *What did you like most about this tool for learning more about the challenges of tomorrow's cities?*
- *What did you like less about this tool for learning about the challenges of tomorrow's cities?*
- *What exercise did you do in connection with the theme worked on in Greenopolis?*
- *What did you think of these exercises?*
- *In the course of this school year 2023 I would like to....*
- *What changes do you think we should consider making to the Greenopolis platform?*
- *For you, what is the most important to think the city of tomorrow?*

For teachers, eight questions were asked:

- *What environmental topic did you work on with the Greenopolis platform?*
- *I chose to work on this theme for the following reasons...*
- *As a teacher, what did you think of the Greenopolis platform?*
- *From a pedagogical standpoint, what did you like most about this tool for learning more about the challenges of tomorrow's cities?*
- *After working with this educational platform to think about the cities of tomorrow*
- *What are the strengths of the Greenopolis platform?*
- *What changes do you think we should consider making to the Greenopolis platform?*
- *For you, what is the most important thing to raise awareness and educate the students of Velika Gorica about the city of tomorrow?*

In the interest of furthering communication between schools and the municipality, we included a final exercise where students were asked to write concrete ideas on **how to think about or improve their cities in the near future**. The ideas were collected and sent to municipal planners in Velika Gorica to feed their local reflections. An E-book presenting the students' initiatives in English and Croatian completed the fieldwork carried out in Croatia by WP5 (DPU).

4 CONTEXT AND TESTING IN SCHOOLS IN VELIKA GORICA - CROATIA

The context in which the Greenopolis platform was presented to students varied greatly in each Croatian school. The variables that played an important role in the test were: **the time allowed for the activity** (between 30 min and 2 hr. 30 min); **the time teachers took to explore and prepare the activity beforehand**; and the **suitability of the platform's content** for different subjects and student ages.

In the following, we briefly describe how the activity unfolded in each school (*in situ* observations), and present the main results obtained from the questionnaires proposed, to gain a better understanding of teachers' and students' feedback on their pedagogical experience.

4.1 Novo Čiče school

In an e-mail exchange with the school's REGREEN contact person before our visit to Croatia, it was agreed that the school's biology teacher would carry out the test with her 3rd grade class. Three days before the planned test, there was a change of plan, as the biology teacher would not be available on the day of our visit. The library resource person who would carry out the activity was not a biology teacher, but sensitive to environmental issues. With only a few days to prepare, she chose to work on the theme "biodiversity in the city". This choice was based on the fact that Novo Čiče's school is located in a rural village that does not encounter the problems of big cities like Zagreb.

4.1.1 Presentation of the platform

Nineteen students (11 girls and 8 boys) met in the library, sitting at tables arranged in a horseshoe facing the facilitator, who used a large screen to present Greenopolis. She introduced the subject by talking about the school's participation in the REGREEN project, explaining the aim of the project and its interest in biodiversity and nature-based solutions for tomorrow's cities. The facilitator introduced Sally Anderson and Mara Sierra-Jimenez, explained the aim of their visit, and they had invited the students to carry out an activity with Greenopolis. Introducing the activity, she adds: *"You have to learn and save us from the apocalypse that will come with climate change. You have a responsibility to know so that you can provide solutions"*.

After introducing each of the platform's topics and giving specific examples, the facilitator quickly focused the session on the topic of biodiversity. She engaged the students in a lively discussion of their knowledge of nature in their village. They discussed differences of size and urban planning between their village, the town of Velika Gorica and the city of Zagreb – to raise awareness and introduce the problems of big cities. The facilitator called on students to read the information on the platform to the class, and together they analyze the images linked to the themes. The students were very attentive and responded actively to questions posed by the facilitator, This session lasted 30 min.

4.1.2 Suggested activity related to biodiversity: The creative corner - *The pocket park*

After a 10-minute break, the facilitator introduced the proposed activity to the students. She brought out tools and materials for the creative activity (colored sheets, glue, scissors, etc.) and shoeboxes filled with various natural elements (stones, wood, soli, leaves, moss, sticks). She asked the students to organize themselves into groups of three and explained the aim of the activity: *« A pocket park is a small park between buildings and roads. It is a green oasis in the concrete-jungle of the city. A place for nature and biodiversity, where animals and insects can find food, water and rest in these small oases»*.

The silent room was transformed to total excitement, as students were happy, active and very noisy. Each had a role to play in the construction of their pocket park. They had no trouble handling scissors, glue, cutting colored paper or organizing natural elements in their shoeboxes. This creative dimension of the learning process not only encouraged students to work together and help each other out, but also created some amusing dynamics, with certain groups (of boys) organizing themselves to "steal" moss - essential for finishing their work - from a group of girls furiously protecting their natural treasure.

Student productions underscore the information shared and discussed in advance with regard to Greenopolis. Green spaces, lakes, streams and trees characterized the pocket parks (Photos 1). The activity ended with the completion of the questionnaires and the young people's proposals for improving their village in the future. The facilitator was very pleased with the way the activity had gone, and with the students' interest in the theme of biodiversity.

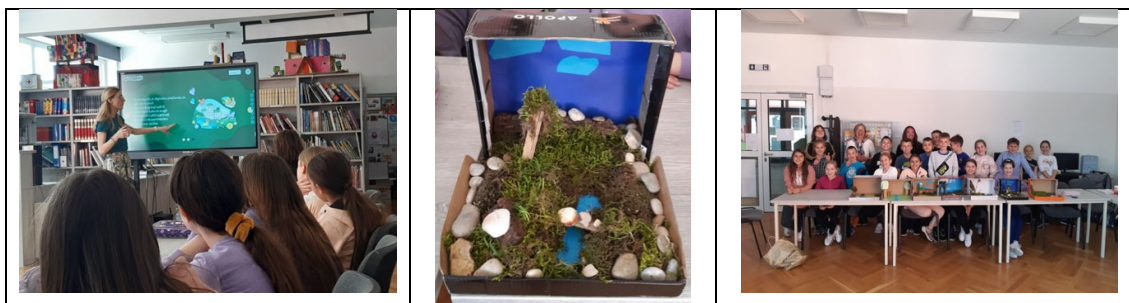


Photo 1. Creative work Pocket Park in Novo Čiče school. *Greenopolis, biodiversity in the city (April, 2023)*

http://os-novo-cice.skole.hr/?news_hk=1&news_id=1220&mshow=290#mod_news

4.1.3 Feedback from the teaching experience: (Appendix 1 and 2)

For students in 3rd grade (aged 9 and 10), the educational experience with the Greenopolis platform was very positive. In general, they found that: "The content is complete and interesting" and that "the animations are clear and appropriate for my age". Many were curious, had fun with the activity and learned a lot about climate-challenged cities. They found the platform's design very attractive, but some were not too keen on the explanations given in the presentation in that they were long and the font too small to read at a distance. Most would like to continue working with the Greenopolis platform to continue thinking about the cities of tomorrow.

For the facilitator, the pedagogical experience was also very positive. During our informal discussions, she told us how apprehensive she had been preparing the session, but she found the platform clear and easy to use, even for people like her who were not biology teachers. She found the topics relevant and the exercises fun and educational for the students. She pointed out that some improvements could be made to the language to make it easier for students to understand the content. She thinks the platform could be better adapted for younger students. In general, her experience with Greenopolis motivated her to continue working on the theme of biodiversity and the cities of tomorrow.

4.2 Rakitoveč school

Rakitoveč elementary school is located in a rural hamlet near the village of Vukovina in Velika Gorica municipality. The school has been awarded the eco-school label for its students' work on recycling and other sustainable development projects. The Greenopolis trial here was led by a religion teacher, accompanied by a biology teacher. The participating fourth grade (age 10-11) had earlier produced an Eco-ebook for REGREEN, which they presented at the Earth Day celebration (April 24). The teachers spent one hour presenting and carrying out Greenopolis activity – discussing the various issues with

students along the way. Students 15 in all (9 girls and 6 boys) sat in rows in their usual classroom - facing a large digital screen. The activity was accompanied by a background of construction noise in the street .

4.2.1 Presentation of the platform

Before starting the session, the teachers presented the Greenopolis platform, connecting it with the students' work on the Eco-ebook for REGREEN as well as the school's eco-school label. They spoke of their interest in having students continue to work with the themes proposed by Greenopolis - to reflect on challenges facing the villages and the city of Velika Gorica. Mara Sierra-Jimenez introduced herself to the class, inviting students to test the Greenopolis tool, and provide their opinions and suggestions for improvement.

The session gets off to a lively start, with a lengthy discussion ensuing between the two teachers and the students, followed by a succession of questions and answers. The class chose to work with the Greenopolis theme, "Noise in the city." Comparisons between Vukovina, Velika Gorica and Zagreb fuel the debate on noise pollution according to city size. But before getting into the substance of the theme, the teachers decided to carry out the "Learning through movement and sensation" activity.

4.2.2 Suggested activity: "*The bee dance*" - 15 min

This activity corresponds to the "biodiversity" topic, but was chosen because it was the simplest to carry out in the time they had to devote to Greenopolis. Exercises proposed in the "city noise" topic required more time or involved leaving the school premises. For the bee dance - two students were chosen to stand motionless in front of the blackboard, like flowers awaiting the arrival of pollinating insects. The rest of the class was organized into various groups that move around the classroom and then 'buzzed' around the two "flowers".

Students had mixed reactions to this exercise. The students were not very active at first. Teachers worked to get them to carry out the exercise as proposed by Greenopolis. There seemed to be some confusion about the purpose of the activity, and some nervous laughter expressing discomfort and embarrassment at the thought of adults they didn't know observing them trying to buzz and dance like bees. The activity ended quickly and without much enthusiasm.

4.2.3 Noise in the city

Unlike the students at Novo Čiče school, the teacher leading the activity read the information on the topic. She took time to read all the proposals, asking questions to get students to discuss the information and images linked to the topic. From time to time, the other teacher added to the discussion by providing examples and new information about urban planning and the problem of noise pollution (Photos2).

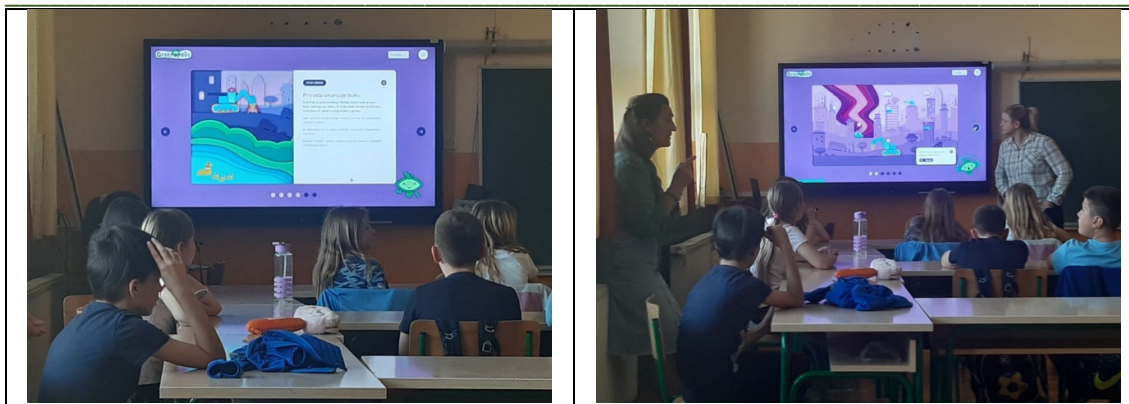


Photo 2. Working on the topic "noise in the city" - Rakitoveč school. *Greenopolis*, (April, 2023).

4.2.4 Feedback from the teaching experience: (Appendix 3, 4 and 5)

Teachers and students felt that working with *Greenopolis* was a positive teaching/learning experience for students in grade four (10 -11 years). Generally speaking, they found that: "The content is complete and interesting" and that "the animations are clear and appropriate for my age". Many were curious and found that they had learned a lot about cities thanks to the reflections and topics. Among the points for improvement, some suggested talking more about animals or modifying the drawing of the images to think about the city.

During the session, we were not able to access student points of view, as there was little translation from the teachers and time was short. On the other hand, we were able to observe that the students were slightly hesitant to involve themselves in the activity. In our opinion, this differentiation is linked to the age of the students in this class, as they were more mature and tween-ager.

Both teachers reported that their experience with *Greenopolis* had been very positive. Despite the fact that their school is located in a rural area and that the proposed topics do not always correspond to their local reality, they found the tool clear and easy to use. They found the topics and exercises interesting, educational and important for working on urban issues.

They are interested in continuing to work on the theme of noise and exploring the *Greenopolis* platform further with other classes. Both suggested some improvements to the language, and think that perhaps *Greenopolis* is more suitable for younger students between 6 and 9 years.

4.3 Eugen Kumičić school

The trial carried out in this school was less productive due to a misunderstanding about who would facilitate the trial between us and biology teacher, who had volunteered to test *Greenopolis* with her 7th grade class (13-14 years). This misunderstanding resulted in both the teacher and us arriving unprepared to facilitate the trial, not having explored the platform to choose content and not having prepared an age-appropriate session for the students.

4.3.1 Presentation of the platform

At the beginning of the class, the teacher gave Mara Sierra-Jimenez the floor to develop the activity. There was confusion as Mara had expected the teacher to lead the session. Realizing something was awry, students started talking amongst themselves. On opening the platform, the teacher exclaimed: "But it's for children! ...they're too big for this". The teacher then chose to explore the platform with the students to see how they might work with the theme of sustainable development. Skimming the topics, she chose to focus on the themes of heat and water in the city. To animate the session, she called on students to read aloud questions and information proposed in Greenopolis. Asking new questions about their opinions, she engaged the students in a discussion. The students were quick to respond; they were very active, lively and dynamic, answering the questions, giving examples and laughing at the Greenopolis images that they found rather childlike. The teacher stopped the exercise after 15 minutes.

She then gave us the floor to explain the reasons for our present visit and the proposed trial of Greenopolis, students were happy and motivated to take part in the project. Sally Anderson asked the students to explain their laughter and comments on the platform. A student who spoke fluent English acted as translator. He explained that his classmates felt that the tool was not age-appropriate for this class, as it appeared to have been designed for primary school children. Whereas they found the topics interesting, the content lacked complexity and depth. The teacher confirmed these assessments. She felt that Greenopolis was better suited to 2nd. to 4th. grade classes. Sally then proposed an exchange on issues and problems that young people find in their own town of Velika Gorica and its current transformation into a larger city. The students expressed concern with the massive construction of buildings and the rapid disappearance of greenery in certain parts of town. Sally then proposed that they write down ideas for improving their city the near future, so we could pass these ideas on to city planners. The students agreed and participate actively.

The students and teacher then answered the questionnaire (Appendix 6 and 7). Here students reiterated that the platform was not appropriate for their grade level. The teacher found the various themes and topics interesting and planned to continue working on these to help students reflect on the cities of tomorrow, but she would not use Greenopolis for this.

5 CONTEXT AND REALIZATION OF TRIALS IN SCHOOLS OF THE PARIS REGION, FRANCE

Two trials of the Alpha version of Greenopolis (in French) were carried out in French schools in September 2021 during the REGREEN project meeting in Paris. These trials were facilitated by Stine Casparij Kondrup and Marie Yvonne Dahlfelt from REGREEN partner INTUGREEN. Mara Sierra-Jimenez, then working for MNHN on the testing of Vigie-Nature school protocols in Ile-de-France, found two schools/ teachers willing to run in-class trials of the platform, the first with a sixth-form college class (age 10-12) and the second, with an elementary school class (age 7-9).

5.1 Argenteuil Elementary School

Argenteuil elementary school was one of the most active Parisian participants in the REEGREEN project. The teacher who coordinated REGREEN initiatives at the school welcomed the WP5 team members and proposed a in-class trial with her students, aged 7-9 years. She chose to work on the topic of biodiversity in the city as this topic fit well with the class' ongoing work with observing the school's biodiversity (MNHN) and an art project (mosaics) on biodiversity.

The teacher's pedagogical focus was on the class's involvement in REGREEN and the importance of the students' active participation in helping researchers in their work on biodiversity. Her presentation of Greenopolis platform focused on image analysis. Using the images as a starting point, she was able to develop the various pieces of information on biodiversity in cities, giving examples and asking the children questions about nature, the city of Argenteuil, or about what they liked or didn't like about where they lived. The children were interested and participated actively in the exercise. At the end of the activity, the Regreen team invited the students to ask questions about schools and children in Denmark.

The teacher liked the activity and found the Greenopolis platform a very educational and instructive way of working with her class on themes linked to nature and cities.

5.2 Emile Zola Collège School

The college Émile Zola is located in the Suresnes district of Île-de-France. A 6th -grade ecology club, with children aged 10-12, that was already participating in REGREEN agreed to carry out a test of the Greenopolis platform, despite Covid 19 constraints. The biology teacher and the head of library services both guided a class of 15 students – sitting in rows in a regular classroom – through the activity that lasted 45 min.

The teachers introduced the REGREEN partners – Stine and Marie – making the connection with REGREEN work already underway with Vigie-Nature school protocols from MNHN. Fluent in French, Marie introduced the different topics, focusing on biodiversity. She asked the students questions about biodiversity, current problems in cities and gave examples. While students listened, only some raised their hands; others talked amongst themselves or carried out other activities.

When the teacher warned that the class was about to end, Marie quickly passed out a questionnaire to get feedback from the students. (Results of these questionnaires are not available for this report) As class ended, Mara Sierra-Jimenez quickly asks students to mention what they thought of the platform, in particular to make improvements. One boy - who appeared annoyed – said he thought the platform better suited to younger children and other students nod in agreement.

Speaking to the head librarian about her experience, we learned that she found the platform interesting and the proposed topics good tools for thinking about the issues facing large cities like Paris, or medium-sized towns that are developing rapidly. On the other hand, she too thought Greenopolis was better suited for younger students between age 7 and 9 – due to its child-like design

and animations used to provide information and illustrate the city. She explained the students' lack of engagement as an expression of their not being happy with the exercise. As 6th graders, they had just left primary school behind and moved to a higher level where they were among the "big kids." They thus felt it beneath them to have to engage with an activity they found child-like.

The teacher found Greenopolis' explanatory texts a little too complex to understand and out of sync with the childlike animations. She suggested revising the language, to simplify terms and write in a French children could easily grasp.

6 RESULTS AND POINTS FOR IMPROVEMENT

The comparative observations made in schools in Croatia and France, as well as the data collected through questionnaires and informal exchanges with teachers and students, have provided us with clear and relevant information on the pedagogical appropriation of the Greenopolis platform in school contexts.

6.1 How teachers from different disciplines and grade levels appropriate the Greenopolis platform in their classrooms

- Appropriation is achieved through the links that teachers can make between the themes they work on in class and the topics on the platform. Mainly to talk about sustainable development, biodiversity, urban planning or global warming.
- Appropriation also involves mutual discovery of the pedagogical tool and the new theme for several teachers: "thinking about the cities of the future" and "thinking about nature-based solutions". Teachers can use these themes to motivate participation and concrete action with their students.
- The time teachers take to discover the Greenopolis topics, and the time they spend preparing activities with their students, is central to the appropriation of the tool. Teachers should plan sessions of 1h30 to 2h to make the most of the information provided, and carry out one or two relevant exercises linked to the topic of discussion.
- Adapting the tool and exercises to the age of the students is fundamental. The platform encourages different levels of analysis and activities. They enable teachers to work with 6-7 year-olds through playful animations and simple exercises that serve as a tool for talking about the city and working on creative and bodily dimensions with children. The explanatory content and more complex exercises also encourage work with older students, aged between 8 and 10 maximum.

6.2 Students' reactions in situ, their participation and their appropriation of the tool during its presentation and the activities proposed by their teachers

- **Students aged 6 - 7:** Are generally attentive to the drawings and animations proposed by Greenopolis. The teacher needs to develop pedagogical animation strategies based on these images to create exchanges with the children through stories, examples from everyday life,

songs, etc. Based on the exercises proposed by the tool, the teacher can also invent other activities better adapted to her class, their local areas and the topic of reflection.

- **Students aged 8 to 10:** Are also attracted by the design and themes of the platform. The explanatory information and questions on the platform encourage exchanges between students and teachers and students and help them discover new issues related to the city and their daily lives. The teacher can use the platform to stimulate discussion according to the students' abilities and skills. The exercises proposed for this age group are dynamic and allow a variety of pedagogical options to be explored. From our observations, we can add that the dimensions of construction and creativity work very well for students of this age.
- **Students aged between 10 and 11:** are slightly more critical of the design and content of Greenopolis. At this age, there appears to be a tension between their interest in the topics and the explanations offered by the tool and their rejection of the images and animations deemed childish for students their age. Teachers wishing to work with Greenopolis among this age group need to be able to supplement the platform's information and exercises with more age-appropriate images and activities. Certain scientific and reflective exercises can be interesting for this age group.
- **Students aged between 12 and 14:** Students of this age do not react positively to Greenopolis, as they do not find platform's child-like design suitable for their age group. Despite the interest shown in the topics proposed, this educational platform does not inspire more complex reflection and discussion with teenagers.

6.3 Greenopolis platform strengths and areas for improvement

The strong points that have often been put forward are :

- Simple and pleasant to use
- Clear and interesting content
- Interesting topics for thinking about the cities of tomorrow
- Introduction of new themes such as nature-based solutions
- Educational exercises that can be easily adapted for use with students
- Attractive, child-friendly design and animation
- A tool that encourages new and different educational processes

Points for improvement and attention for the Greenopolis platform:

- Not easy to use with students in rural towns where there as yet are few issues typical of big cities
- Suitable for working with students aged 6 to 10 maximum
- Need to improve translation and editing for Croatian and French easily grasped by younger children
- Increase font size to make it easier for students to read information on the screen in class
- Gap between images and animations (for children) and content to explain topics (more complex, for older students)
- Provide more information on animals

Annex 1. REPONSES-STUDENTS-GREENOPOLIS-NOVO CICE-3

Age:	9-10	Girl:	11	Boy:	8	Class level:	3
School:	NOVO CICE Time activity: 2:30						

1. What environmental theme did you work on with the Greenopolis platform?

a.	A diverse city (Biodiversity)	x	b.	The sound of the city (sound)	
c.	Hot city (Heat)		d.	Urban wetlands (water)	
e.	Clean air in the city (Air)				

2. What did you think of the content of Greenopolis to work on this theme?

a.	The content is complete and interesting	18	b.	The animations are interesting to discuss in class	2
c.	The content is difficult to understand	1	d.	The animations are clear and appropriate for my age	8
e.	The content is not adapted to my age level		f.	The animations are not adapted for my school level	

3. Did you enjoy the work done with the Greenopolis platform to understand the challenges of tomorrow's cities?

a.	Yes, it was very interesting	15	b.	A little, it was difficult for me	1
c.	Absolutely, I learned a lot about cities	6	d.	Not at all, I was bored	1
e.	Yes, I was curious and I had a lot of fun	13	f.	I didn't really understand why I should be interested in this topic	

4. What did you like most about this tool for learning more about the challenges of tomorrow's cities?

a.	Platform design is beautiful	15	b.	The questions helped us to think about cities	7
c.	The topics are important	5	d.	The images are a good tool for reflection	7
e.	My teacher could explain things to us.	1	f.	We had good class discussions on the subject of future cities	2
g.	Other:				

5. What did you like less about this tool for learning about the challenges of tomorrow's cities?

a.	The platform design	3	b.	The questions proposed to talk about the city	1
c.	The explanations for each theme	9	d.	The images proposed to think the city	
e.	The exercises proposed in the platform	1	f.	Class discussions on the subject of the tomorrow's cities	3
g.	Other: I liked everything (2)				

6. What exercise did you do in connection with the theme worked on in Greenopolis?

a.	Reflections about cities	6	b.	Learning through movement and sensation	
c.	Creativity and imagination <i>The pocket park of your dreams</i>	16	d.	Exploration of their neighborhood	
e.	Scientific experiments and investigations		Other:		

7. What did you think of these exercises?

a.	It was very interesting for me	15	b.	It was difficult for me	1
c.	I learned a lot about cities	7	d.	I was bored	
e.	I was curious and I had a lot of fun	6	f.	I didn't really understand the material	
g.	I really enjoyed this experience	7	h.	I really hated this experience	

8. In the course of this school year 2023 I would like to:

a.	Continue to work on the city of tomorrow with Greenopolis	13	b.	Doing more Greenopolis exercises in class	5
d.	Show the platform to my friends	6	e.	Show the platform to my family	8
f.	Providing nature-based solutions in my school	4	g.	Providing nature-based solutions for my neighborhood	1

9. What changes do you think we should consider making to the Greenopolis platform?

- Nothing to modify
- Increase the size of the letters to make reading the information easier (8)
- A bit easy and a bit difficult
- More motivation to study the environment

10. For you, what is the most important to think the city of tomorrow?

- More plants, flowers and green spaces
- There are many changes to make for the cities of tomorrow
- The cleanliness of the city
- That the city is nice and big
- That the city is big and shiny like Las Vegas or Dubai
- Full of nature
- No waste in the city
- Water, oxygen, food, and no pollution
- The forest

Annex 2. REPONSES-TEACHER-GREENOPOLIS-NOVO CICE-3

Age:		Class level: 3 (9-10 years old)
School:	NOVO CICE	Discipline: Responsible for the Library

1. *What environmental topic did you work on with the Greenopolis platform?*

a. A diverse city (Biodiversity)	x	b. The sound of the city (sound)	
c. Hot city (Heat)		d. Urban wetlands (water)	
e. Clean air in the city (Air)			

1.1 *I chose to work on this theme for the following reasons*

a. The topic is relevant to my discipline		b. I am personally interested in this topic	
c. This is the only topic I found interesting for my class		d. To explore together with my students	
e. It was the easiest for the level of my class.		f. It was the most interesting for the level of my class.	
g. Other: Other topics not as relevant since because we are not actually in a city.			

2. *As a teacher, what did you think of the Greenopolis platform?*

a. The information is clear and relevant for me and for my students		b. The topics are interesting for working on the cities of tomorrow	x
c. The exercises are diversified and pedagogical	x	d. I did not find the information clear or relevant to my students.	
e. It was difficult for me to use the platform in my discipline		f. The platform is not adapted to my pedagogical needs	
g. This is a great educational discovery for me		h. I want to continue working on the cities of tomorrow with my students.	
a. Other:			

3. *From a pedagogical standpoint, what did you like most about this tool for learning more about the challenges of tomorrow's cities?*

a. The platform design is clear		b. Questions asked helped us think about cities	x
c. The explanatory content for each theme	x	d. Images are a good tool for reflection	x
e. The possibility to give my personal explanations on the subject		f. Class discussions on the subject of the tomorrow's cities	
g. The exercises proposed in the platform are interesting	x	h. Other:	

4. After working with this educational platform to think about the cities of tomorrow

a. I would like to continue working on the “cities of tomorrow” and “nature base solutions” with Greenopolis in my classroom		b. I would like to continue working on the “cities of tomorrow” and “nature base solutions” <u>but without</u> using Greenopolis.	
c. For me, it was a test and I stop here		d. This test made me want to work on other topics related to ecology.	
e. I would like to go further and work with other colleagues on this topic in the school.		f. I liked the exercises proposed and I want to develop them with my students	x
g. My students enjoyed the experience and it made me want to continue working on the environment in our city.	x	h. I did not like my experience with Greenopolis. I don't want to continue.	
i. It was not easy for me to work with this platform with my students. They didn't like it.		j. I would like to propose a nature-based solutions project with my students for school.	
k. Other:			

5. What are the strengths of the Greenopolis platform?

- **Concise and clear**
- **Available exercises and activities**
- **Beautiful animations**

6. What changes do you think we should consider making to the Greenopolis platform?

- ***I liked the platform, it's easy to use once you get to know it, I'd like to see more content!***

7. For you, what is the most important thing to raise awareness and educate the students of Velika Gorica about the city of tomorrow?

- ***It's important to teach and practice these subjects, go out, do practical work and exercises and connect with the local community***

Annex 3. REPONSES-STUDENTS-GREENOPOLIS-RAKITOVEC- 4

Age:	10 – 11	Girl:	9	Boy:	6	Class level:	4
School:	RAKETOVEC SKOLA						Time activity: 1h

1. *What environmental theme did you work on with the Greenopolis platform?*

a.	A diverse city (Biodiversity)		b.	The sound of the city (sound)	x
c.	Hot city (Heat)		d.	Urban wetlands (water)	
e.	Clean air in the city (Air)				

2. *What did you think of the content of Greenopolis to work on this theme?*

a.	The content is complete and interesting	13	b.	The animations are interesting to discuss in class	7
c.	The content is difficult to understand		d.	The animations are clear and appropriate for my age	13
e.	The content is not adapted to my age level		f.	The animations are not adapted for my school level	1

3. *Did you enjoy the work done with the Greenopolis platform to understand the challenges of tomorrow's cities?*

a.	Yes, it was very interesting	14	b.	A little, it was difficult for me	1
c.	Absolutely, I learned a lot about cities	7	d.	Not at all, I was bored	
e.	Yes, I was curious and I had a lot of fun	7	f.	I didn't really understand why I should be interested in this topic	

4. *What did you like most about this tool for learning more about the challenges of tomorrow's cities?*

a.	Platform design is beautiful	10	b.	The questions helped us to think about cities	4
c.	The topics are important	9	d.	The images are a good tool for reflection	6
e.	My teacher could explain things to us.	6	f.	We had good class discussions on the subject of future cities	2
g.	Other:				

5. What did you like less about this tool for learning about the challenges of tomorrow's cities?

a. The platform design	1	b. The questions proposed to talk about the city	1
c. The explanations for each theme	1	d. The images proposed to think the city	2
e. The exercises proposed in the platform	1	f. Class discussions on the subject of the tomorrow's cities	1
g. Other:			

6. What exercise did you do in connection with the theme worked on in Greenopolis?

a. Reflections about cities	12	b. Learning through movement and sensation: <i>The dance of bees</i>	5
c. Creativity and imagination	5	d. Exploration of their neighborhood	
e. Scientific experiments and investigations		Other:	

7. What did you think of these exercises?

a. It was very interesting for me	16	b. It was difficult for me	
c. I learned a lot about cities	7	d. I was bored	1
e. I was curious and I had a lot of fun	5	f. I didn't really understand the material	
g. I really enjoyed this experience	8	h. I really hated this experience	

8. In the course of this school year 2023 I would like to:

h. Continue to work on the city of tomorrow with Greenopolis	7	j. Doing more Greenopolis exercises in class	7
i. Show the platform to my friends	6	l. Show the platform to my family	7
m. Providing nature-based solutions in my school	5	n. Providing nature-based solutions for my neighborhood	2

9. What changes do you think we should consider making to the Greenopolis platform?

- Nothing to modify (6)

-
- Talk more about animals

10. For you, what is the most important to think the city of tomorrow?

- That people do not pollute nature
- Clean up the area (5)
- Protect the forest and plant more trees
- Less buildings and more greenery
- That you listen to what you are told
- That everything is clean and green

Annex 4. REPONSES-TEACHERS-1-GREENOPOLIS-RAKITOVEC- 4

Age:	59 years old	Class level:	4 (10-11 years old)
School:	RAKITOVEC	Discipline:	Biology- 1

1. What environmental topic did you work on with the Greenopolis platform?

a.	A diverse city (Biodiversity)		b.	The sound of the city (sound)	x
c.	Hot city (Heat)		d.	Urban wetlands (water)	
e.	Clean air in the city (Air)				

2. I chose to work on this theme for the following reasons

a.	The topic is relevant to my discipline		b.	I am personally interested in this topic	
c.	This is the only topic I found interesting for my class		d.	To explore together with my students	x
e.	It was the easiest for the level of my class.		f.	It was the most interesting for the level of my class.	
g.	Other:				

3. As a teacher, what did you think of the Greenopolis platform?

The information is clear and relevant for me and for my students	x	The topics are interesting for working on the cities of tomorrow	x
The exercises are diversified and pedagogical	x	I did not find the information clear or relevant to my students.	
It was difficult for me to use the platform in my discipline		The platform is not adapted to my pedagogical needs	
This is a great educational discovery for me		I want to continue working on the cities of tomorrow with my students.	x
b.	Other:		

4. From a pedagogical standpoint, what did you like most about this tool for learning more about the challenges of tomorrow's cities?

The platform design is clear	x	Questions asked helped us think about cities	x
The explanatory content for each theme	x	Images are a good tool for reflection	x
The possibility to give my personal explanations on the subject	x	Class discussions on the subject of the tomorrow's cities	x
a.	The exercises proposed in the platform are interesting	b.	Other:

5. After working with this educational platform to think about the cities of tomorrow

I would like to continue working on the “cities of tomorrow” and “nature base solutions” with Greenopolis in my classroom	x	I would like to continue working on the “cities of tomorrow” and “nature base solutions” <u>but without</u> using Greenopolis.	
For me, it was a test and I stop here		This test made me want to work on other topics related to ecology.	x
I would like to go further and work with other colleagues on this topic in the school.		I liked the exercises proposed and I want to develop them with my students	
My students enjoyed the experience and it made me want to continue working on the environment in our city.	x	I did not like my experience with Greenopolis. I don't want to continue.	
It was not easy for me to work with this platform with my students. They didn't like it.		I would like to propose a nature-based solutions project with my students for school.	
Other:			

6. *What are the strengths of the Greenopolis platform?*

- Positive experience for me.
- ☐ I like platforms like this to work with students

7. *What changes do you think we should consider making to the Greenopolis platform?*

- Some corrections, or improvements, in the language to better understand the statements and explanations
- Perhaps more suitable for students between 6 and 9 years old
- A bit difficult to start working with the topics because we are not in a city like Zagreb.

8. *For you, what is the most important thing to raise awareness and educate the students of Velika Gorica about the city of tomorrow?*

- Biodiversity and waste reduction

Annex 5. REPONSES-TEACHER2-GREENOPOLIS-RAKITOVEC- 4

Age:	51 years old	Class level: 4 (10-11 years old)
School:	RAKITOVEC	Discipline: Religion -2

1. What environmental topic did you work on with the Greenopolis platform?

a. A diverse city (Biodiversity)		b. The sound of the city (sound)	x
c. Hot city (Heat)		d. Urban wetlands (water)	
e. Clean air in the city (Air)			

1.2 I chose to work on this theme for the following reasons

a. The topic is relevant to my discipline		b. I am personally interested in this topic	x
c. This is the only topic I found interesting for my class		d. To explore together with my students	x
e. It was the easiest for the level of my class.		f. It was the most interesting for the level of my class.	
g. Other:			

2. As a teacher, what did you think of the Greenopolis platform?

a. The information is clear and relevant for me and for my students	x	b. The topics are interesting for working on the cities of tomorrow	x
c. The exercises are diversified and pedagogical	x	d. I did not find the information clear or relevant to my students.	
e. It was difficult for me to use the platform in my discipline		f. The platform is not adapted to my pedagogical needs	
g. This is a great educational discovery for me		h. I want to continue working on the cities of tomorrow with my students.	x

3. From a pedagogical standpoint, what did you like most about this tool for learning more about the challenges of tomorrow's cities?

The platform design is clear	x	Questions asked helped us think about cities	
The explanatory content for each theme	x	Images are a good tool for reflection	x
The possibility to give my personal explanations on the subject	x	Class discussions on the subject of the tomorrow's cities	
The exercises proposed in the platform are interesting		Other:	

4. After working with this educational platform to think about the cities of tomorrow

a. I would like to continue working on the “cities of tomorrow” and “nature base solutions” with Greenopolis in my classroom	x	b. I would like to continue working on the “cities of tomorrow” and “nature base solutions” <u>but</u> <u>without</u> using Greenopolis.	
c. For me, it was a test and I stop here		d. This test made me want to work on other topics related to ecology.	
e. I would like to go further and work with other colleagues on this topic in the school.		f. I liked the exercises proposed and I want to develop them with my students	x
g. My students enjoyed the experience and it made me want to continue working on the environment in our city.	x	h. I did not like my experience with Greenopolis. I don't want to continue.	
i. It was not easy for me to work with this platform with my students. They didn't like it.		j. I would like to propose a nature-based solutions project with my students for school.	

5. What are the strengths of the Greenopolis platform?

- I really liked it. I want to discover the other topics and activities

6. What changes do you think we should consider making to the Greenopolis platform?

- Some corrections, or improvements, in the language to better understand the statements and explanations
- Perhaps more suitable for students between 6 and 9 years old
- A bit difficult to start working with the topics because we are not in a city like Zagreb.

7. For you, what is the most important thing to raise awareness and educate the students of Velika Gorica about the city of tomorrow?

- Have green surfaces in buildings (noise and heat insulation)
- Build less high buildings
- More greenery and less buildings

Annex 6. RESPONSES-STUDENTS-GREENOPOLIS- EUGENA KOMICICA-7

Age:	13/14	Girl:	12	Boy:	14	Class level:	7
School: EUGENA KOMICICA							

1. What environmental theme did you work on with the Greenopolis platform?

f.	A diverse city (Biodiversity)	x	g.	The sound of the city (sound)	
h.	Hot city (Heat)	x	i.	Urban wetlands (water)	x
j.	Clean air in the city (Air)				

2. What did you think of the content of Greenopolis to work on this theme?

g.	The content is complete and interesting	8	h.	The animations are interesting to discuss in class	5
i.	The content is difficult to understand	1	j.	The animations are clear and appropriate for my age	1
k.	The content is not adapted to my age level	13	l.	The animations are not adapted for my school level	6

3. Did you enjoy the work done with the Greenopolis platform to understand the challenges of tomorrow's cities?

g.	Yes, it was very interesting	10	h.	A little, it was difficult for me	1
i.	Absolutely, I learned a lot about cities	5	j.	Not at all, I was bored	3
k.	Yes, I was curious and I had a lot of fun	3	l.	I didn't really understand why I should be interested in this topic	3

4. What did you like most about this tool for learning more about the challenges of tomorrow's cities? (More than one answer possible)

h.	Platform design is beautiful	9	i.	The questions helped us to think about cities	1
j.	The topics are important	9	k.	The images are a good tool for reflection	5
l.	My teacher could explain things to us.	4	m.	We had good class discussions on the subject of future cities	3

n. Other:

5. What did you like less about this tool for learning about the challenges of tomorrow's cities?

h. The platform design	6	i. The questions proposed to talk about the city	3
j. The explanations for each theme	4	k. The images proposed to think the city	3
l. The exercises proposed in the platform	6	m. Class discussions on the subject of the tomorrow's cities	3
n. Other:			

6. What exercise did you do in connection with the theme worked on in Greenopolis?

f. Reflections about cities	16	g. Learning through movement and sensation	
h. Creativity and imagination	8	i. Exploration of their neighborhood	
j. Scientific experiments and investigations		Other:	

7. What did you think of these exercises?

i. It was very interesting for me	10	j. It was difficult for me	2
k. I learned a lot about cities	6	l. I was bored	6
m. I was curious and I had a lot of fun	3	n. I didn't really understand the material	2
o. I really enjoyed this experience	9	p. I really hated this experience	2

8. In the course of this school year 2023 I would like to:

o. Continue to work on the city of tomorrow with Greenopolis	7	p. Doing more Greenopolis exercises in class	4
q. Show the platform to my friends	7	r. Show the platform to my family	1
s. Providing nature-based solutions in my school	4	t. Providing nature-based solutions for my neighborhood	4

9. What changes do you think we should consider making to the Greenopolis platform?

- Increase and adapt the questions for level 7

-
- Very easy questions for our age
 - Made for small children
 - How to save the planet
 - Not a good impression

10. For you, what is the most important to think the city of tomorrow?

- The beauty of the environment
- Making pollution disappear
- Renewable energy and industrial and commercial centers
- To be healthy
- More greenery
- Survival
- Let it be like Zagreb
- Many things to think about