



July 27, 2026

**Matanel Foundation & The Israel Society of Ecology and Environmental Sciences**

**Zavit in Education - Environmental Literacy for the Next Generation (643):**

**1st Year (2025-2026) Final Report**

**Executive Summary**

During the 2025–2026 activity year, the **Israel Society of Ecology and Environmental Sciences**, with the support of the **Matanel Foundation**, led two complementary initiatives aimed at strengthening ecology and environmental education within the school system: the development of an innovative pedagogical toolkit for outdoor learning and a nationwide teacher training program designed to expose educators to up-to-date scientific knowledge in the fields of ecology and environmental science.

The project was initiated in recognition of the fact that environmental issues – including climate change, biodiversity loss, overuse of natural resources, and air and water pollution – have become central challenges affecting the society in Israel and around the world. At the same time, a gap exists between the current scientific knowledge accumulated in academia and the knowledge available to teachers and students in schools. The project's goal was to bridge this gap by making current scientific knowledge accessible to teachers and by developing pedagogical tools that enable meaningful, active, and relevant learning experiences for students.

As part of the project, a digital outdoor-learning toolkit in ecology was developed. The toolkit is based on six learning units, which combine classroom learning with inquiry-based activities conducted in the schoolyard. The toolkit underwent a development process, an initial pilot phase, and review by educational supervisors and Ministry of Education professionals. Following revisions and refinement, it was distributed to teachers for classroom use.

At the same time, a nationwide teacher training program was conducted with approximately 130 teachers representing a wide range of disciplines, including biology, environmental science, geography, civics, language studies, agriculture, and general science. The training combined lectures by leading researchers, exposure to recent studies and developments at the forefront of scientific knowledge, and discussions on ways to integrate these topics into teaching practice.

Approximately 90% of the teachers who completed the feedback survey reported that the training content was relevant to their educational work. Many participants noted that the program enriched their professional knowledge, inspired the development of new teaching materials, and strengthened the connection between the education system and the scientific community. Beyond the direct beneficiaries who participated



in the training, additional teachers and students benefit from the program through access to recorded lectures and their integration into classroom teaching.

The project successfully achieved its primary objectives: developing a high-quality pedagogical product, facilitating its implementation among teachers, creating a professional learning community, and strengthening the connection between academic research and school-based education.

Among the project's most significant indicators of success were the numerous positive teacher evaluations of the training program and the favorable feedback received from the Ministry of Education regarding the toolkit and the activities that were developed.

We would like to express our gratitude to the Matanel Foundation for its support, which made possible the development of this program, the advancement of ecology and environmental education in Israel, and the dissemination of up-to-date scientific knowledge to hundreds of teachers and students. This support enabled the creation of an educational infrastructure that will continue to serve the education system in the years ahead.

### Development of Teaching Materials

The project focused on the development of a digital pedagogical toolkit for outdoor ecology education. The toolkit is based on six learning units, each combining an experiential ecology lesson with a field excursion in the schoolyard, which constitutes an integral component of the curriculum requirements.

The toolkit is designed to provide students with an independent, active, and technology-enhanced learning experience in the environment surrounding their school. It includes guidance on the use of simple and accessible technological tools for both teachers and students, enabling students to carry out field tasks independently. This approach reduces the teacher's need to provide technical guidance to each group individually and allows more time for personalized support, responding to the needs of different working groups, and providing pedagogical facilitation throughout the field activity.

As part of the project, we began conducting a pilot program in schools. Simultaneously, the materials developed underwent a review process conducted by Ministry of Education instructors as well as by the subject-area supervisor. The pilot was not completed due to the war.

Following feedback from the Ministry of Education's supervisory staff, a process of content refinement and improvement was undertaken. After these revisions, the toolkit was distributed to teachers for educational use. A link to the toolkit is available [here](#). It is also [available online](#) for the teachers on the Zavit Education website.



**Here's some feedback from Instructors:**

1. "The idea is wonderful, and the integrated activities are attractive and comprehensive.

I especially liked the reflection component at the end of each section.

Given the current situation, if this is published soon, it may be worth emphasizing that the activities can also be carried out in a home yard.

However, I wonder whether the length of the document might discourage teachers from using it.

It may be worthwhile to consider presenting it differently – perhaps as a mini-website or digital learning space where each learning unit appears in a separate tab (subject, of course, to available time and resources, as this would require additional work).

In any case, I would suggest making each learning unit available as a standalone activity for teachers who cannot conduct so many outdoor sessions but would still like to incorporate some of the activities.

In addition, I am trying to understand, on a technical level, how students transform the output from Google Forms into a field-trip portfolio report. Perhaps it would be better to use Google Docs instead?

One final comment concerns the design – it is very attractive and colorful, but I wonder whether it may be somewhat overloaded.

There is very little white space, and while the fonts are interesting, they are less comfortable for reading large amounts of continuous text.

(This may be a personal preference, but features like these make it harder for me to maintain reading flow and motivation to continue to the end of the document.)"

2. "Overall, this is a comprehensive guide containing many excellent ideas.

I do not believe there is a teacher who has enough time to implement everything that is proposed here.

Significant streamlining and adaptation are needed. [...]

Elements I particularly liked:

- The food web activity.
- The use of Artificial Intelligence to analyze photographs of one-square-meter sampling plots. It provides a precise prompt from which one can really learn what can be requested and how. It is innovative and highly valuable.
- Learning Unit 6, which addresses human impacts. It is much more detailed than what I usually ask for, and in my view, it is extremely important."

The toolkit will be presented at the National Biology Teachers' Conference.



## Teacher Training

Alongside the development of the teaching materials, a dedicated teacher training program was conducted. Through this program, participants were exposed to lectures by scientists and to up-to-date content knowledge in the fields of ecology and environmental science. In addition to attending lectures, teachers participated in active learning processes during which they developed their own educational activities and teaching materials based on the new knowledge they acquired throughout the training.

During October–November, the training program was designed, appropriate lecturers were recruited, and the pedagogical framework was developed. Administrative procedures were completed to enable teachers to receive professional development credit through two different tracks: one graded and one non-graded. The program was advertised and opened for registration to teachers from a wide variety of subject areas.

The initial training program distributed:

| <b>קוראים את הסביבה</b> |     |           |             |                           |
|-------------------------|-----|-----------|-------------|---------------------------|
| <b>תוכנית ההשתלמות</b>  |     |           |             |                           |
| תאריך                   | יום | מיקום     | שעות        | נושא המפגש                |
| 10.12.25                | ד'  | מקוון     | 19:00-21:00 | מפגש פתיחה                |
| 15.12.25                | ב'  | אסינכרוני | 19:00-21:00 | משימה אסינכרונית 1        |
| 23.12.25                | ג'  | מקוון     | 19:00-21:00 | הרצאה - פרופ' רון מילוא   |
| 29.12.25                | ב'  | מקוון     | 19:00-21:00 | הרצאה - פרופ' משה ענבר    |
| 05.01.26                | ב'  | מקוון     | 19:00-21:00 | הרצאה - פרופ' יוסי יובל   |
| 12.01.26                | ב'  | מקוון     | 19:00-21:00 | הרצאה - ד"ר חגית אולנבסקי |
| 19.01.26                | ב'  | מקוון     | 19:00-21:00 | הרצאה - ד"ר נגה סטמבלר    |
| 26.01.26                | ב'  | אסינכרוני | 19:00-21:00 | משימה אסינכרונית 2        |
| 02.02.26                | ב'  | מקוון     | 19:00-21:00 | הרצאה - ד"ר עדי לוי       |
| 09.02.26                | ב'  | אסינכרוני | 19:00-21:00 | משימה אסינכרונית 3        |

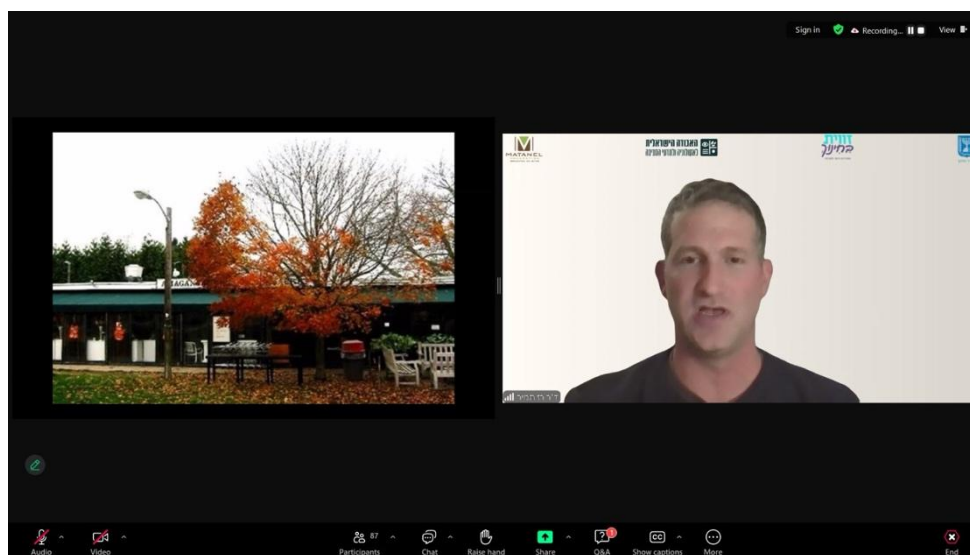
\* ייתכנו שינויים בל"ז במהלך ההשתלמות.

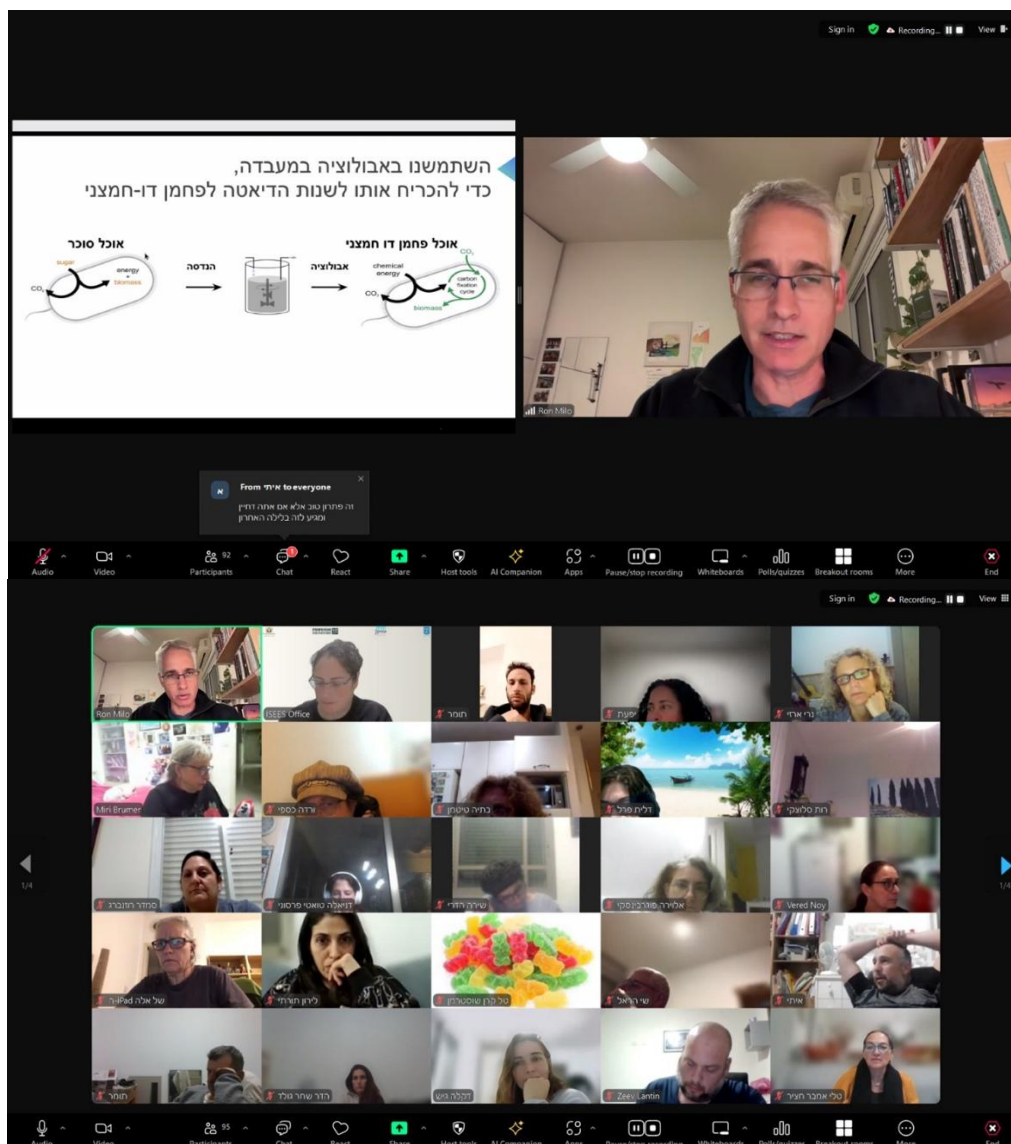
Two additional lectures were later added to this program:



Prior to each session, teachers received reminders, promotional materials, and updates about upcoming meetings.

Photographs from several sessions are also shared here:





Approximately 130 teachers from a variety of subject areas participated in the training program. Of these, around 100 teachers took part in the track that qualified for professional development credit, and approximately 80 teachers completed the feedback questionnaire administered at the conclusion of the program.

The feedback questionnaire examined several aspects related to the quality of the training and its relevance to teaching practice. One of the central questions assessed the extent to which the training content was relevant to classroom instruction. Approximately 90% of respondents indicated that the training content was relevant to their teaching. This finding is particularly noteworthy given that participants represented a wide range of disciplines and were not limited to the life sciences or environmental sciences.



The lectures were recorded, enabling teachers to access them later and to show selected portions in their classrooms.

Below are several teacher responses illustrating the contribution of the training from their perspective (The feedback questionnaire included several questions. The following sample responses provide an overview of participants' views).

#### A. Were the Training Contents Relevant to Classroom Teaching?

Approximately **90% of survey respondents** reported that they found the content relevant to classroom instruction. It is particularly interesting to examine responses from teachers representing a diverse range of subject areas.

**Below are several detailed responses provided by participants:**

"Yes, the training content is highly relevant to classroom teaching in the *Reading the Environment* course and can significantly deepen and enrich it. Here is how it connects in practice to classroom learning:

- Developing environmental literacy – The training provides tools for critically interpreting spaces, environmental processes, and the relationships between people, nature, and society, which are at the core of the course.
- Inquiry and field-based learning – The content can be translated into inquiry activities, field trips, analyses of local case studies, and work with diverse sources (maps, photographs, articles).
- Connecting to students' everyday lives – The focus on the local environment creates high relevance, emotional engagement, and the development of a sense of civic responsibility.
- Critical and interdisciplinary thinking – The training supports the integration of geography, social studies, science, and civics, in line with the spirit of the course.
- Active pedagogy – The tools and approaches taught in the training encourage meaningful learning, discussion, values-based dialogue, and action.

In summary, the training is not only well suited to the *Reading the Environment* course but can also serve as a strong pedagogical and methodological foundation for developing rich and meaningful learning units in the classroom."

*Rowan, Civics Teacher (Grades 10–12).*



"Yes, absolutely. The training content is highly relevant to teaching in my classes. I used the materials presented during the training, as well as the accompanying texts, when teaching expression and reading comprehension to 9th and 10th grade students. The training introduced me to a great deal of new knowledge and was extremely interesting."

*Mali, Hebrew Language and Composition Teacher; Learning Disabilities Coordinator (Grades 9-11).*

"The training content is highly relevant to teaching 11th-grade classes, particularly in the context of Hebrew language instruction focusing on reading comprehension and written expression. The lectures addressed contemporary environmental, scientific, and social issues – including air pollution, the climate crisis, food systems, biodiversity, and sustainability – topics that are playing an increasingly prominent role in public and media discourse.

As a language teacher, I see these materials as a rich source of academic texts, popular science texts, and lectures that can be adapted for students in order to practice critical reading, summarizing, argument construction, and opinion writing skills.

The lectures created meaningful connections between language studies and other disciplines, while highlighting the importance of language as a tool for understanding reality, forming informed opinions, and fostering civic engagement."

*Batya, Hebrew Language and Composition Teacher (Grade 11).*

"According to the curriculum, climate change is a required topic that must be taught both in the introductory unit and as a compulsory subject for all 10th-grade students. The course content expanded my knowledge base and provided information that I can share with my students. This is especially important because these topics represent emerging and innovative knowledge, which can be presented to students as information that has only recently become available and gained significance during the period in which we are living."

*Fatma, Biology Teacher (Grade 10).*

"The topics are very interesting and well aligned with students' natural curiosity. My role is to adapt information to the level of my students who have mild intellectual and developmental disabilities accompanied by multiple challenges."

*Daniella, Agricultural Science Teacher (Grades 1-12).*

"Yes, most of the content is highly relevant to my teaching. Hagit's lecture on sustainable nutrition inspired me to establish a new agricultural branch at the



educational farm called '*Nutrition from the Garden*,' with an emphasis on sustainable nutrition, including the preparation of local, fresh, seasonal food. I am currently working on developing a learning unit on this topic for the entire teaching staff."

*Ella, Agricultural Science and Environmental Studies Teacher (Grades 1-6).*

"The content was highly relevant. The training deepened my professional knowledge and exposed me to topics that I would not have encountered independently."

*Maayan, Biology Teacher (Grades 10-12).*

"Without a doubt, the content was diverse, current, and highly valuable for effective teaching. It generates interest and curiosity among students about contemporary issues and developments. The program was extremely successful and was delivered in a clear and detailed manner, making it possible to adapt and present the material to students effectively."

*Rivka, Biology and Ecology Teacher (Grades 9-12).*

Approximately 10% of teachers reported that the content was only partially adapted to their teaching needs.

**Below are several representative responses:**

"Partially. Not all of the content was relevant. Nevertheless, it is always beneficial to enrich the general knowledge base of teachers."

"Definitely yes. It is clear that most of the lectures were delivered at a level that was quite advanced for heterogeneous classrooms, but substantial portions of the lectures can certainly be used in classroom teaching."

"I think that many of the topics were somewhat challenging to make accessible to students. The book-related topics were interesting, but more for teachers than for students. Many of the subjects were either too difficult for middle school students or too broad in scope. Most of the content presented during the training was geared toward an adult audience at an academic level. However, it is impossible to separate the world around us from what is taught in the classroom. It is our responsibility as teachers to make the necessary adaptations and establish appropriate connections in order to bring these worlds closer to younger students."



### B. In What Ways Did the Training Benefit You?

Most teachers highlighted the training's contribution to expanding their knowledge of relevant and important environmental topics, providing updates on developments at the forefront of research, supplying a rich repository of new texts and resources, and offering pedagogical tools for classroom use.

**Below are several responses from teachers who chose to elaborate on the program's impact:**

"The training contributed significantly to deepening my knowledge of environmental and ecological issues and introduced me to current and relevant topics. I was introduced to information, examples, and diverse implementation strategies that strengthened my understanding of human impacts on the environment and the importance of environmental stewardship.

I incorporated the knowledge and tools I acquired during the training into science lessons in my special education classroom. Naturally, I adapted the content to suit my students' level, which enabled them to engage with environmental topics in a way that was accessible, tangible, and meaningful for them."

*Mali, Science, Geography and Special Education Teacher (Grades 10-12).*

"The training contributed to my professional development on several important levels, both professionally and pedagogically. It deepened my understanding of environmental literacy and of approaches to critically interpreting environmental spaces, while strengthening the connection between environmental theory and its educational application in the classroom.

In addition, I was exposed to a variety of pedagogical approaches, with an emphasis on inquiry-based learning, the use of local environmental resources, and interdisciplinary teaching.

The training provided me with practical tools for designing meaningful learning units that encourage student engagement, critical thinking, and the development of personal and social responsibility toward the environment. Beyond that, it encouraged professional reflection on my role as a teacher and strengthened my confidence in leading learning processes that are relevant, connected to students' everyday lives, and linked to contemporary issues."

*Rowan, Civics Teacher (Grades 10-12).*



"The training introduced me to topics that I had not previously encountered and greatly enriched my knowledge. The diverse materials provided can benefit teachers beyond the sciences because they present information in an engaging and accessible way. If teachers use these materials effectively in the classroom, even students who do not enjoy working with texts can find them engaging."

*Yael, Social Sciences Teacher (Grades 10–12).*

"It is extremely important to come into the classroom equipped with up-to-date knowledge. This enables me, as a teacher, to capture students' attention. The training also serves as a valuable source of reliable and current knowledge, particularly since many years have passed since we completed our undergraduate and graduate studies.

In addition, the lecturers were respected researchers from several fields related to environmental science and ecology, representing a range of highly regarded academic institutions."

*Elad, Sustainability Teacher (Grades 10–12).*

"The training introduced topics that I had never considered teaching before. For example, the sessions on bats and on environmental issues regarding our marine environment – including fishing regulations, climate change, and the impacts on fish species.

Another aspect I particularly appreciated was the way assignments were structured. In the first assignment, we were required to read an article before class and submit several questions about the text. This approach immersed us more deeply in the topic and made it much clearer. It is a method that I plan to implement in my classroom."

*Daniella, Agricultural Science Teacher (Grades 1-12).*

"The training sparked a strong curiosity in me to explore new topics and renewed my motivation to develop new lesson plans, particularly following the assignment based on the book *The Glory of the Sea*.

In addition, the exposure to current content across different fields of knowledge, the comprehensive information presented from multiple perspectives, and the sense of renewal and inspiration all contributed significantly to my teaching."

*Vered, Geography and Environmental Science Teacher (Grades 10 and 12).*

"The training enriched me greatly on a personal level and opened a window into fields about which I previously had limited knowledge (for example, plant galls).



I also see the training as important because it helps maintain a connection with academia, current research, books, and recent publications. More than twelve years have passed since I completed my master's degree, and I feel a strong need to remain connected to and informed about these subjects."

*Neri, Homeroom Teacher and Science Coordinator (Grades 5-6).*

"The themes addressed in the training and lectures are very close to my heart – protecting nature, the environment, wildlife, and plants.

I received information that expanded my existing knowledge, broadened my perspective, and encouraged me to think more deeply than usual about how I can contribute, educate, and create change – personally, within my family, at school, and within the community – so that the world around us is harmed as little as possible."

*Ruth, Nature, Agriculture and Environment Studies Teacher (Grades 1-6).*

"The training contributed to deepening both my professional and personal knowledge in the field of biology. It introduced me to current topics and strengthened the connection between theory and practice.

I gained ideas for inquiry-based activities and hands-on learning experiences, as well as methods for incorporating active learning into the classroom. In addition, the training strengthened my confidence both as an instructor and as a teacher."

*Smadar, Science Teacher (Grades 2-4 and 6).*

### C. What Would You Recommend Preserving?

Most teachers referred to the well-known lecturers who led the sessions, and to the strong balance between disciplinary knowledge and pedagogy.

#### **Below are several representative responses:**

"The structure of the training really feels teacher centered. There was a clear effort to ensure the lectures were interesting, and that the assignments were focused, relevant, and not too heavy. This was very noticeable and, in my opinion, is something worth preserving. It is not something to be taken for granted, and it is significantly better than many other professional development programs I have attended. So thank you for that – I truly appreciate it, and I strongly recommend keeping it!"

"I appreciated that you brought in people who are truly leading experts in their fields for each topic, and who also knew how to communicate clearly and make the sessions



engaging. Maintaining high-quality lecturer selection greatly contributed to the training."

"I recommend preserving the combination of up-to-date scientific knowledge with practical pedagogical application, as well as the balance between theoretical content and hands-on inquiry experience. I would recommend keeping the experiential learning and practical activities, inquiry-based tasks and group work, the connection to relevant real-life and environmental issues, and the sharing of knowledge among participants, creating a professional learning community."

"I would recommend preserving the basic character of the training, especially the emphasis on the connection between research and literature, and the practical ways in which researchers presented their work. This approach is very effective in introducing teachers to advanced information and academic research methods that they do not usually encounter in the daily routine of full-time school teaching."

#### D. What Would You Recommend Improving?

Approximately half of the participants did not suggest any improvements. Among the suggestions that were raised, a prominent theme was the request for introduction to a broader range of content, as teachers from different disciplines sought stronger alignment with what they teach and greater connection to school curricula and classroom needs.

#### **Below are several responses:**

"The questions at the end of the lectures were not always clear to me, and some of them created a somewhat heavy atmosphere."

"Expanding practical tools – adding more detailed examples of lesson plans, learning units, and assessment tools adapted to different grade levels, and deepening pedagogical support through personal feedback and assistance in implementing the content in practice during teaching."

"At times, the training felt somewhat like a full university course with lectures and questions. It would be helpful to include more teaching tools and classroom applications, and to integrate interactive activities such as Padlet writing or even Kahoot. The timing of the session is late, and it is sometimes difficult to maintain full attention."

"Everything was perfect. I would recommend extending the training to 60 hours so that, in my opinion, the final assignment (5 pages) would better match the scope of the program."



"Integrate AI. Other than that, it was an excellent training. Well done on the organization and leadership of the program. Thank you very much!"

"I am satisfied with your training programs. From a technical perspective, I would suggest moving the session start time to 20:15, as it is very difficult for those with children to make time earlier."

"Everything is great, and thank you very much for the training. I am really looking forward to next year!!!!!! Perhaps allow a slightly longer timeframe for submitting assignments – this was likely due to my personal situation, as my mother was hospitalized, and I was under a lot of pressure. But I understand that this is personal..."

In addition to the survey responses, we would like to share a message sent by one of the teachers at the end of the program:

"The training was unique and fascinating because it was based on lectures grounded in current research. What I especially appreciated was the introduction to books, some of which formed the basis of the lectures. After each session, I shared the new and fascinating information I had learned with my students."

The teacher also shared photos from classroom lessons inspired by the lectures:



## Conclusion

In an era in which environmental challenges are becoming increasingly complex and urgent, investing in teachers is one of the most effective and impactful ways to create long-term change among the next generation.



We would like to express, yet again, our gratitude to the Matanel Foundation for its trust, partnership, and support, which made the realization of this project possible. The Foundation's contribution helped translate up-to-date scientific knowledge into educational tools with a lasting impact on teachers, students, and educational communities across the country.

**A short video Summary of The Project:**

<https://www.youtube.com/watch?v=mdZ6qgvmoVk>

Kind regards,

Dr. Raz Tamir & Shaked Shefy Cohen

Co-CEO | The Israel Society of Ecology and Environmental Sciences

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