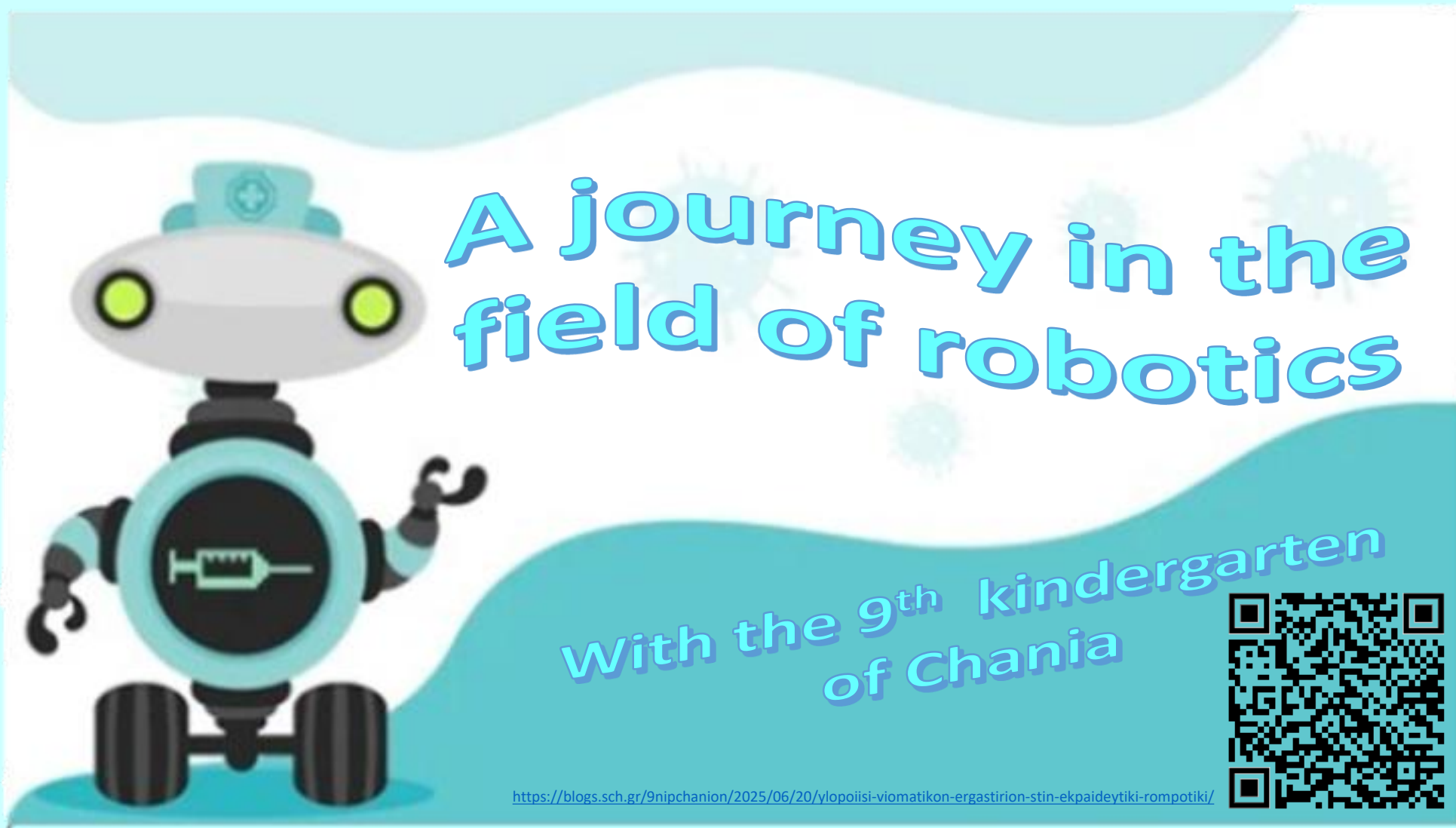
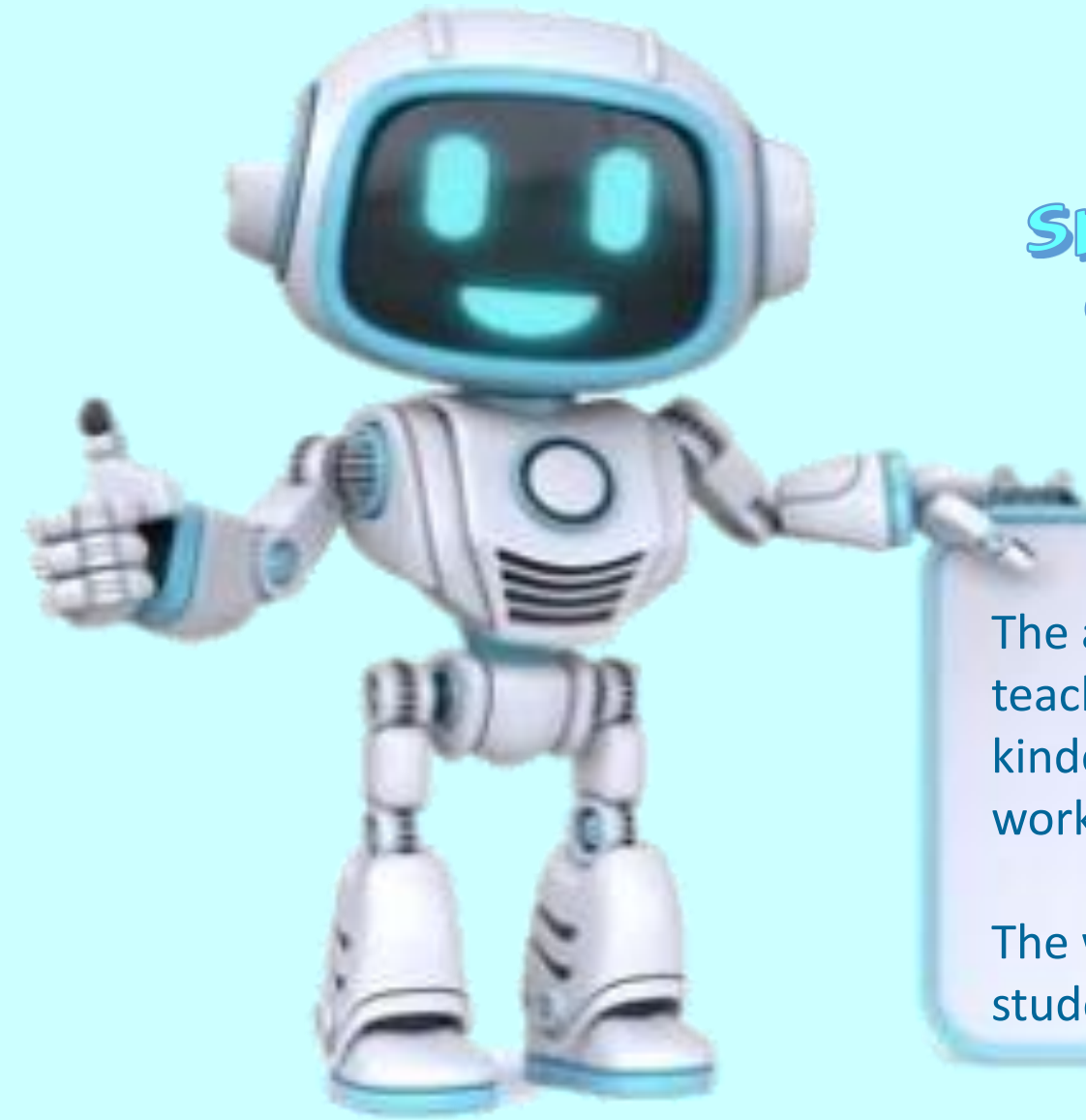




Nikolaos Spanoudakis
Assistant Professor
Department of Electronic Engineering
Hellenic Mediterranean University





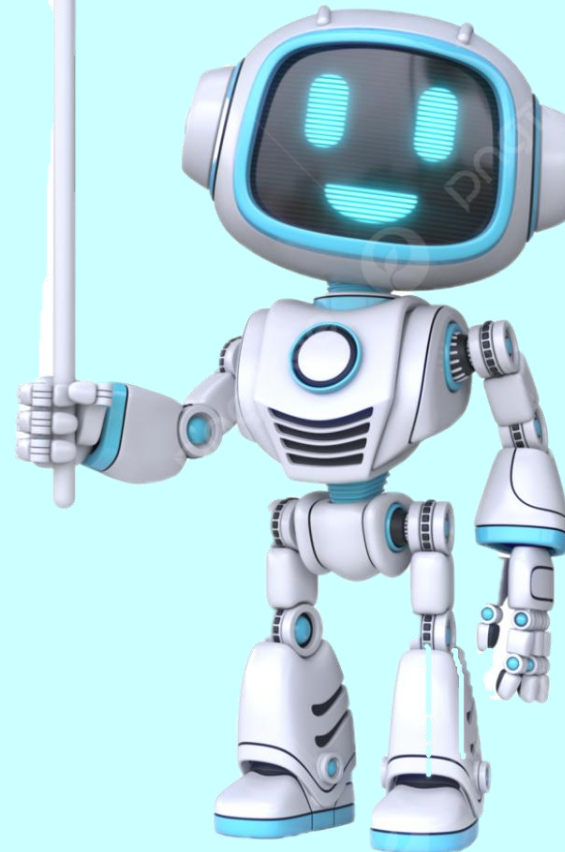
*Special thanks to the ministry of
education for introducing the
robots*

The activity was undertaken as part of the participation of teachers in the development of educational activities in the kindergarten area as well as in the framework of skills workshops (**2 days**),

The workshops were implemented with the participation of all students and teachers of the school unit (2025).

1st day Experiential Workshop With

- Ioanna Michalogianni
- Marianna Trikerioti
- Alexandra Zagali
- Maria Tsangalidou (parallel support teacher)
- Maria Stavrianoudaki





- The contact, familiarization and development of skills of toddlers in robotics.
- To activate the interest of children and to create internal motivation in them regarding the subject.



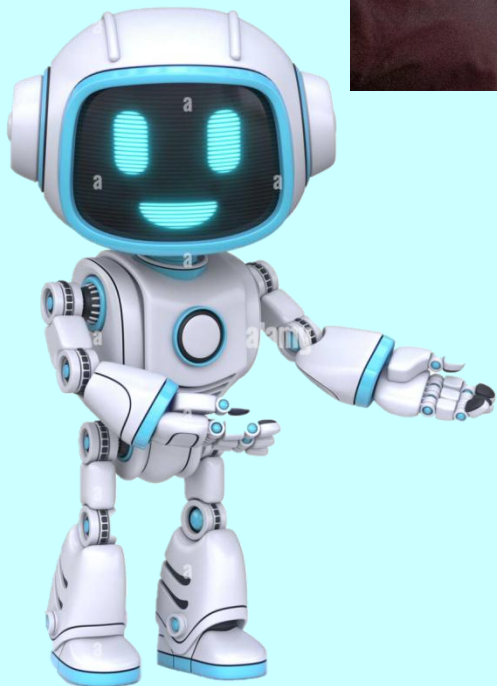
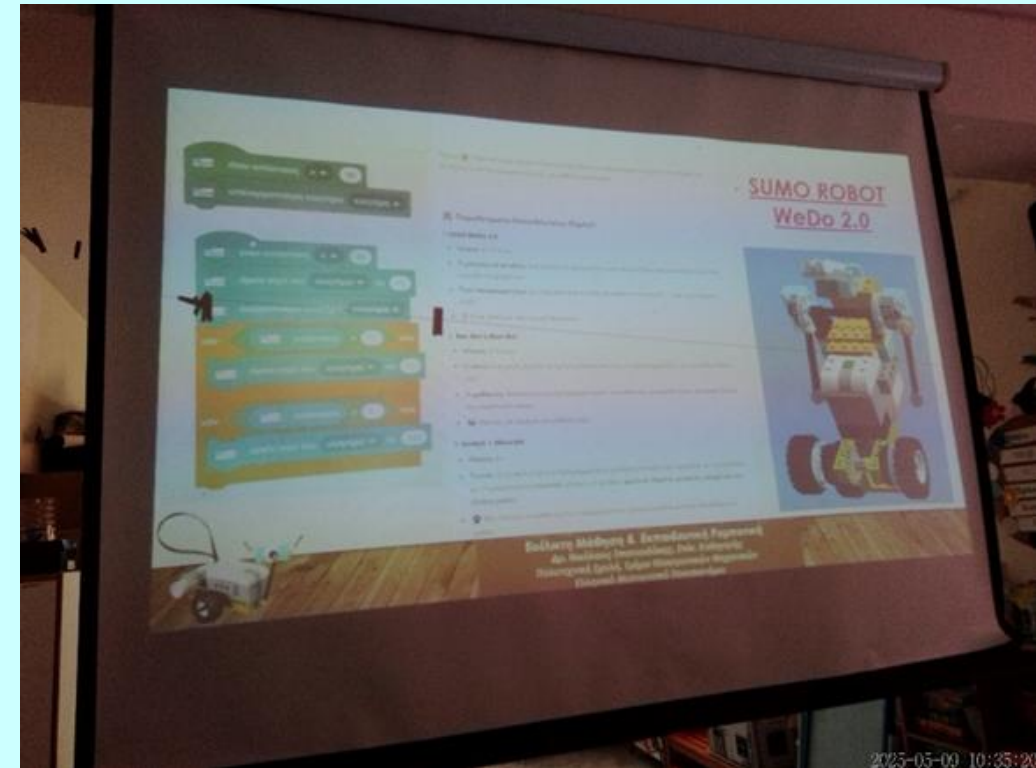
Initially through targeted questions, both closed and open-ended by the teacher and the brainstorming that followed

- the children's **prior knowledge**, perceptions and experiences regarding the science of Robotics were explored.



At the same time,

- the children's questions were answered,
- their doubts were resolved,
- opinions about robotics and robots were clarified.

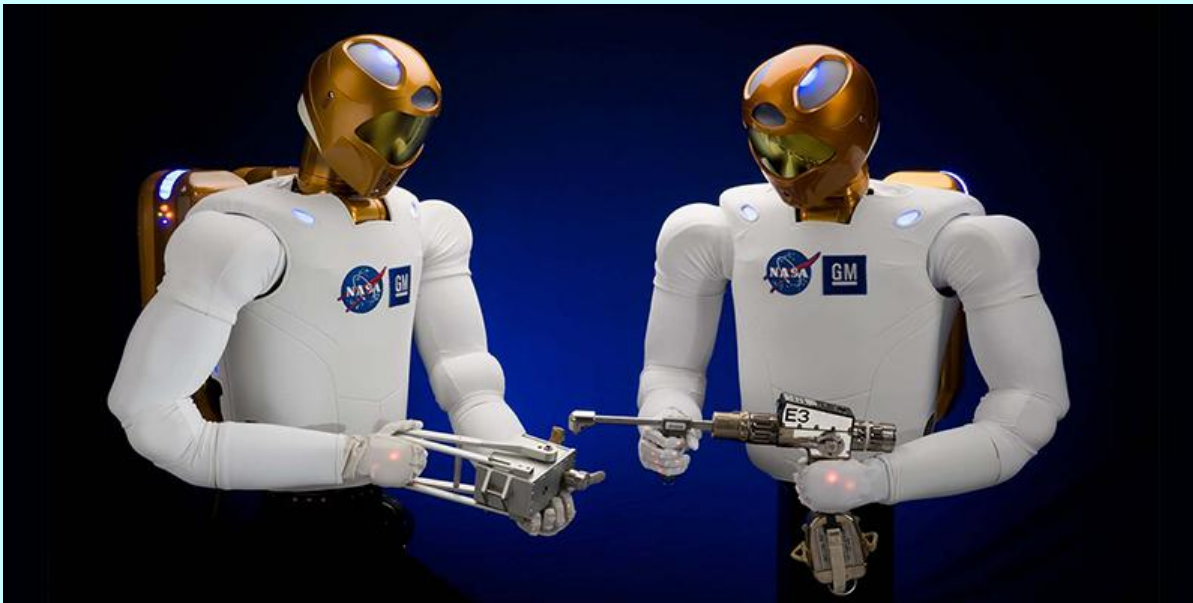


Then we presented the science of robotics and

- **Types of robots**
- **Their operation**
- **Their applications in everyday life**

From Educational Robotics to Artificial Intelligence

Professions *not of the future but of the present*



Robonaut 2 is a humanoid robot designed to work alongside humans in space.
| Manufacturers: NASA / General Motors

- [Boston Dynamics](#)
- [Boston Dynamics 2](#)
- [Engineered Arts](#)
- [Chat GPT](#)



Τέλεια! 😊 Πάμε να δούμε μερικά απλά και διασκεδαστικά παραδείγματα ρομπότ που μπορείς να φτιάξεις και να προγραμματίσεις εσύ, ως μαθητής δημοτικού!

🔗 Παραδείγματα Εκπαιδευτικών Ρομπότ

1. LEGO WeDo 2.0

- Ηλικίες: 6-10 ετών
- Τι μπορείς να φτιάξεις: ένα ρομποτικό αυτοκίνητο, έναν ανεμιστήρα, ένα ρομποτικό πουλί που κουνάει τα φτερά του!
- Πώς προγραμματίζεις: με drag-and-drop εντολές σε tablet ή υπολογιστή — σαν να φτιάχνεις παζλ!
- 💡 Είναι απλό και ιδανικό για αρχάριους.

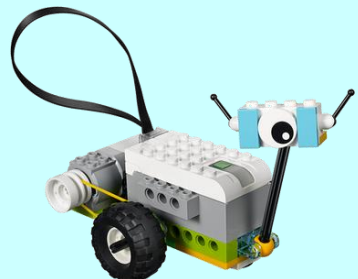
2. Bee-Bot ή Blue-Bot

- Ηλικίες: 4-9 ετών
- Τι κάνει: ένα μικρό ρομπότ σε σχήμα μελισσούλας που το προγραμματίζεις με κουμπάκια πάνω του!
- Τι μαθαίνεις: βασικές έννοιες προγραμματισμού, κατευθύνσεις (μπροστά, πίσω, αριστερά, δεξιά), και στρατηγική σκέψη.
- 🐝 Ιδανικό για παιχνίδι και μάθηση μαζί!

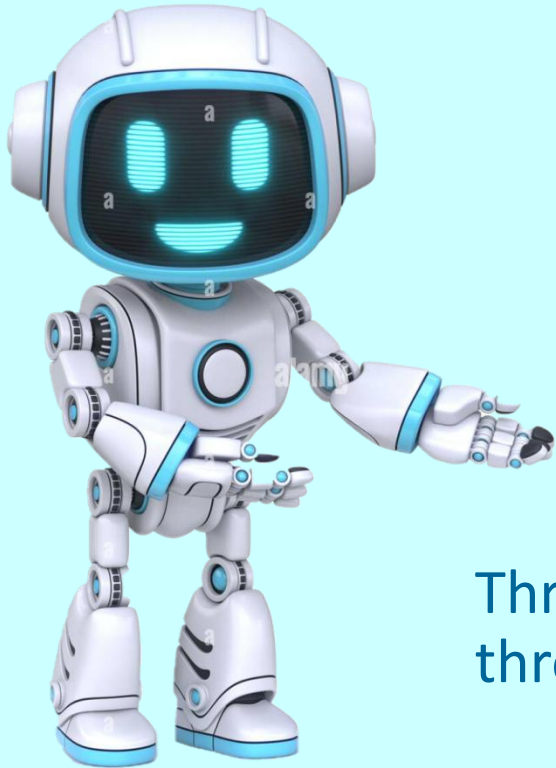
3. Scratch + Micro:bit

- Ηλικίες: 8+
- Τι είναι: Το Scratch είναι ένα πρόγραμμα όπου φτιάχνεις ιστορίες και παιχνίδια. Αν το συνδέσεις με τη μικροσυσκευή micro:bit, μπορείς να φτιάξεις φωτεινά σήματα, μετρητές, ακόμα και ένα έξυπνο ρολόι!
- 🧩 Εδώ ξεκινάς να μαθαίνεις πιο «προχωρημένα» πράγματα αλλά με πολύ διασκεδαστικό τρόπο.

• SUMO ROBOT WeDo 2.0



Ευέλικτη Μάθηση & Εκπαιδευτική Ρομποτική
Δρ. Αντώνιος Ι. Κωνσταντάρης, Καθηγητής
Πολυτεχνική Σχολή, Τμήμα Ηλεκτρονικών Μηχανικών
Ελληνικό Μεσογειακό Πανεπιστήμιο



Throughout the presentation, there was interaction with the children through questions and answers.

Getting to
know the
LEGO robot





We moved from theory to practice and had the opportunity to see a Lego robot, built by elementary school kids and programmed to play basketball.



Through the brainstorming method, the children's knowledge and opinions about the robot were explored:

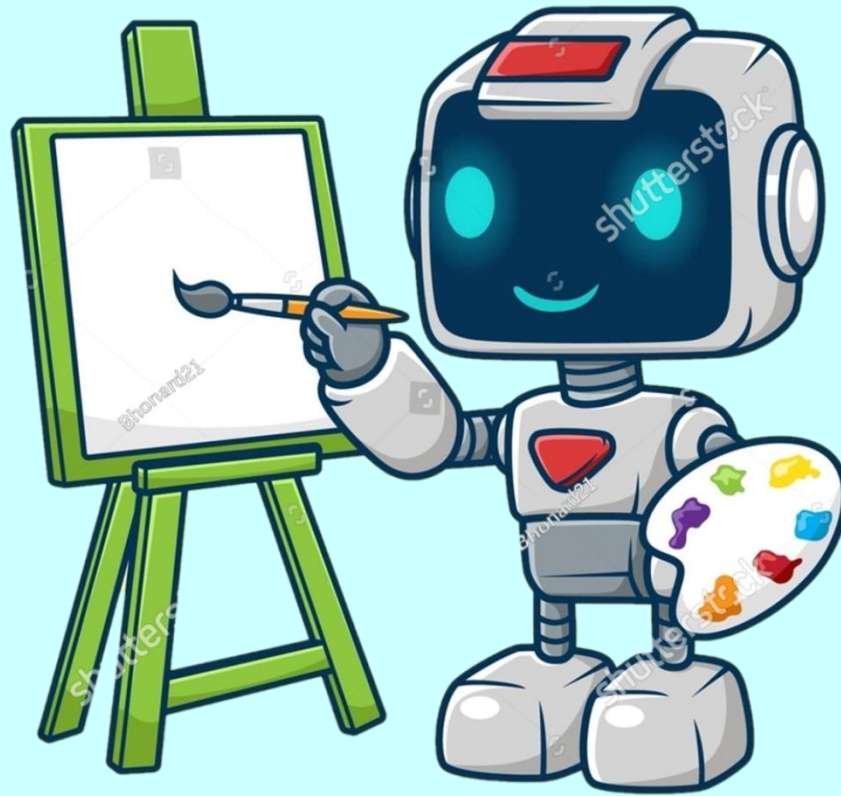
- What material is it made of
- What is inside the robot
- What capabilities does it have
- How does it move
- What is a robot?

The process helped the children become familiar with the concept of the robot and begin to see it as more than just a toy.





We saw the application of programming in practice. The children participated in the calculations and instructions for moving the robot, and finally they succeeded and the robot placed a basket.



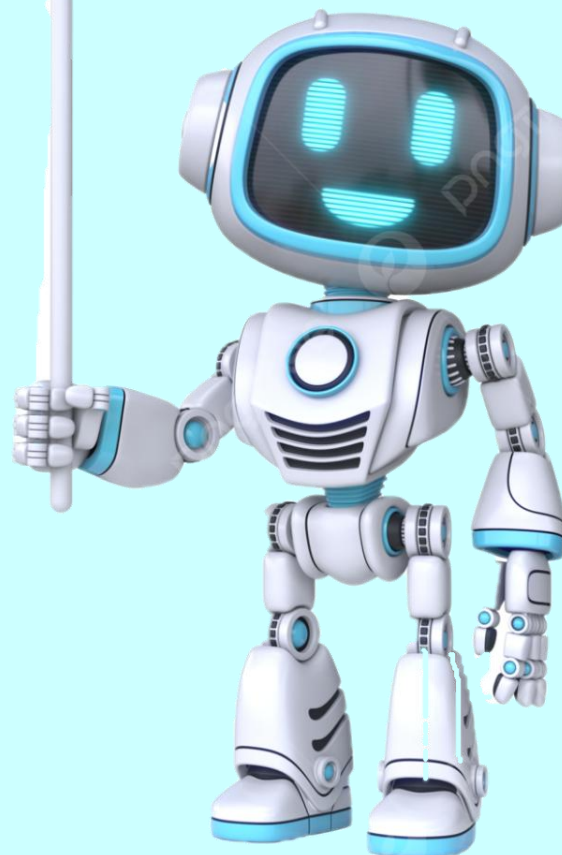
As part of the feedback, the children drew a robot,

- either reproducing one of the robots they saw in the presentation
- or a personal creation of their own.

In this way, the children captured through their sketch, their impressions and feelings from their experience with robotics.

2nd day Experiential Workshop With

- Ioanna Michalogianni
- Marianna Trikerioti
- Alexandra Zagali
- Maria Tsangalidou (parallel support teacher)
- Maria Stavrianoudaki





- The familiarization and development of skills of toddlers in robotics with **Bee Bot**
- To develop skills in the concepts of "algorithm" and "programming", through Path Mapping Teamwork and in an experiential way
- To collaborate to solve programming problems
- To process and map the correct paths on the Bee-Bot Board
- To program the Bee-Bot, so that the problem can be solved.



Process: We have previously approached the thematic unit bee with the children and they know about the organized life in the hive, the process of honey production and mainly how the bee makes honey.

Taking into account the interest, ideas and existing knowledge of the children, **the kindergarten teacher created a story-script, entitled: "I fly to the flowers..."**.



Hello.I am the bee Meli .
April has come and the production of
flower honey begins .
In meadows full of wildflowers and
wild herbs I will fly,
To make honey filled with the aromas
of spring and nature.

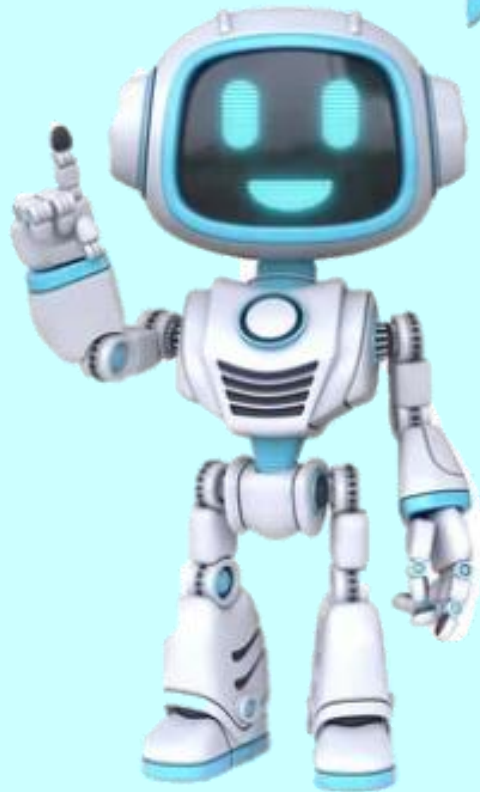
In the story, a bee flies to the appropriate flowers, aromatic plants and herbs,
to collect nectar to produce flower honey.



The children become bees and perform the route experientially with their bodies in the kindergarten area.

We arranged the images, following the development of the story, we captured the route and following commands (forward, turn right, turn right, pause-stop.) they completed the route and solved the problem from the story-script.

Implementation of the Experiential Laboratory





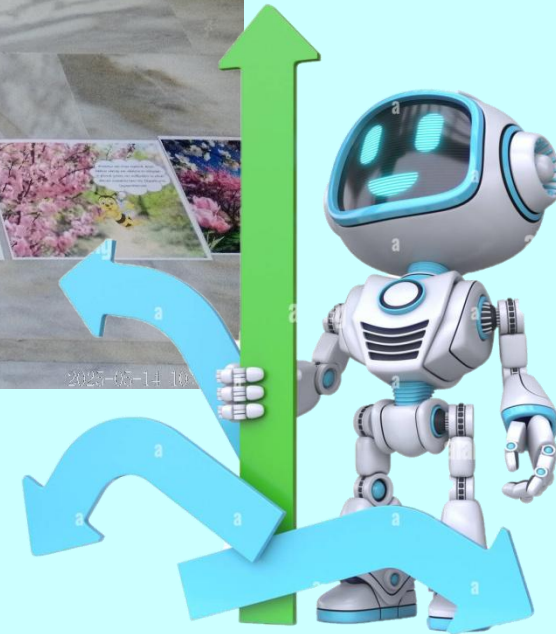
Through targeted questions from the tutor, both closed and open-ended, and brainstorming, the children's prior knowledge, perceptions and experiences regarding educational robotics and the operation of Beebot were explored. Their understanding from the previous day was recalled.

Then, the concepts of programming, code and algorithm were developed.



The next step was to recall their knowledge on the flowers for the honey.

We arranged the pages of the story and the students placed the photos of the flowers in the correct order (from the almond tree to the beehive).



Then the operation of the Bee-Bot was presented and the children learned:

- The directions in which the robot can move (forward, backward, left, right)
- To recognize its symbols
- They understood the length of the robot's step
- The use of the symbols that are necessary for the commands that must be given



Then the idea of the symbols used in sequence for “programming the robot” was introduced.



Each toddler – in turn – programmed the robot to move one step towards its goal.

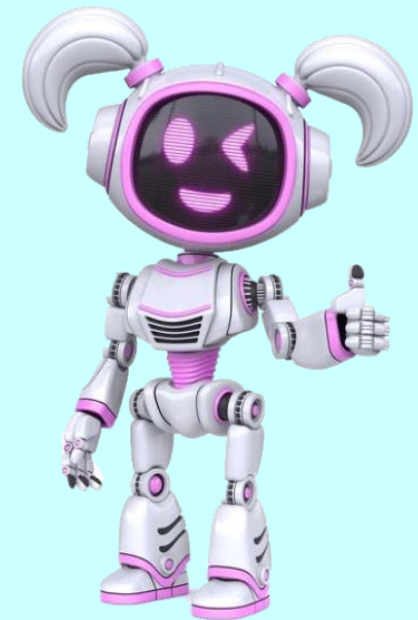


After executing the “order” the toddlers added the card that represented the move to the dashboard



In this way, they collaboratively created the algorithm to solve the problem and allow Beebot to reach the hive without losing its way.





Then, again one by one the toddlers picked the next card and programmed the move to the Beebot. In the end, the Beebot executed the mission with one click of the start button! The kids where amazed to see it do the whole work without their intervention

Impression and reflection



I want to learn robotics.

When I grow up, I want to go to the school where Mr. Nikos is and have him teach me.

We want Mr. Nikos to come again.



I want to make a robot.

We got a little tired, but we had a great time!

We want the robot to stay with us, to help us and for us to help it.

After completing the workshop, the children shared their feelings and wishes for the future regarding robotics.

Now, let's go to the grid

- Have the bee get to the nest
- Experiment with the buttons
 - Click a direction and then go
 - Click another direction and go
 - Now click X so that the robot forgets previous orders
- Use the icons to program the way
- Press the robot buttons in the sequence of the tasks in the icons



Thank You!
Questions?

