Pibot

Playground

Core contepts

This curriculum is based on a first approach to computational thinking. This is an iterative process that is based in three stages: Identification of the problems, Solution expression and Analytical execution.
Through playful activities all participants are challenged and encouraged to explore.

Description of activity

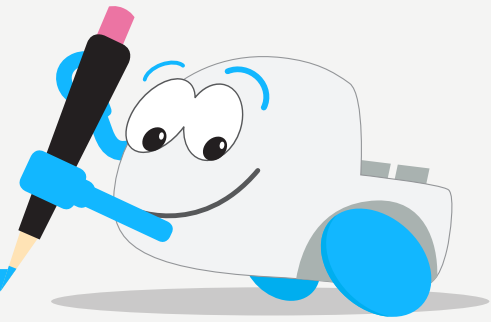
Plobots are young robots and need help learning how to do things on their own. Sometimes they get lost, sometimes they forget things; they don't even know how to make friends. Will you be Plobots' new friends, and help them grow up?
We will play games with Plobots to teach them new things, we will help them find things, solve challenges, make art, and play music. We will also learn how robots work, how they learn, and even how they are made. We don't need any computers or phones; it's more fun to play with our Plobots on the floor! Plobots aren't just for boys; girls have fun playing with Plobots as well.

Description of studio/company

Plobot is a programmable robot for children to develop logical thinking. Instead of using computers, we allow young learners to use smart cards, which represent same program building blocks that programmers would use.

Plobot Playground brings fun to learning about technology. Learning through play is at the core of each activity, empowering kids to find creative solutions and use logical thinking.

There is an ancient Chinese proverb that says, "Interest is the best teacher". We can see this very clearly in our workshops, where kids constantly find new ways to interact with Plobots.



Activity 1

Title: Meet Plobot

Description: This workshop is divided in two activities. Kids start by using paper cups to pile up towers. They stack paper cups as "robots" and program different buildings as "programmers". They also have a first interaction with Plobot by counting steps forward where they get to test their programs. Students are getting acquainted with basic robotics and programming concepts and vocabulary. This lesson is intended to be fun, silly and informative, with the goal of framing robotics and programming as approachable, engaging, applicable, and interesting fields of work, play and study.

Learning Objectives:

- Become familiar with words related to programming
- Understand that they are capable of creating programs

Activity 2

Title: Plobot around the town!

Description: Students reinforce knowledge of programming basics and learn to use program cards to create sequences. Students test acquired knowledge by laying out correct sequences, ultimately programming plobots to perform a series of daily tasks around the town. We will build on the knowledge from the introduction in workshop 1 to create longer sequences for the plobots. They will first answer some questions to reinforce information from previous workshop and then get to immerse themselves in a story where Plobot needs help.

Learning Objectives:

- Understand sequential programming and techniques to write down software
- Become aware of physical dimensions and how to plan a trajectory

Activity 3

Title: Plobot Visits the Wild Animal Park!

Description: Students learn to make Plobot transport building bricks. Students work together with fellow students to program plobots to help "feed" the different animals at the Wild Animal Park, pretending the building bricks are different animal-appropriate "foods" for the assortment of animals, and overcoming obstacles to make sure every animal gets appropriate care.

Learning Objectives:

- See how complex problems can be turned into small problems
- Test solutions in a systematic way, analyzing outcomes in an objective manner

Activity 4

Title: Plobot Sing-a-long!

Description: Students revisit the concept of "what is programming?". Students are introduced to synchronize their movements also with music. Students learn how to combine direction program cards with a new dimension of how we can dance and move with rhythm.

Learning Objectives:
- Understand that software can be used to create and express
- Work in pairs solving problems and thinking new solutions

Activity 5

Title: Plobot Star Performer!

Description: Students combine new cards they just learn this lesson with program cards they've been practicing with to ultimately create their own unique piece to "perform" at the plobot talent show! The plobots are assigned a series of challenges along the way to performance to make sure the plobots are ready for the big show.

Learning Objectives:
- Combine accumulated programming knowledge to create their own unique "performance"
- Embrace diversity of solutions and practice constructive critique among each other

Activity 6

Title: Plobot goes fishing

Description: With the plobot having to practice each rowing stroke many times ("repeating" them, so to speak), the workshop also reinforces the idea of practicing and trying until you get it right, and that there is no such thing as failure, only learning lessons and trying again.

Learning Objectives:
- Students learn the basics of using loops
- Understand the iterative nature of computational thinking

Activity 7

Title: Plobot Surprise Party!

Description: Students reinforce knowledge of code, bugs, and "de-bugging" as well as learn how to program with musical notes program cards in a new way. Utilize and develop student organizational, teamwork and math skills. Students review and build on the knowledge they've acquire over the past several lessons about coding, culminating with using a symbolic representation of money to purchase items. The students will use teamwork, organization, and math skills to make their plobots "shop" for supplies they need to buy to throw a surprise party for a special guests' birthday.

Learning Objectives:
- Students learn the concept of debugging as a natural part of testing a solution
- Master skills of writing down code in an ordered way

Activity 8

Title: Shhhhh! Plobot is listening...

Description: Students dive deeper into more practice with the "pause" and "listen" program cards they were introduced to in the Plobot Star Performer workshop. Students become proficient users of these cards and use them interactively with peers.
Students reinforce programming knowledge by spiraling back to the talent show lesson during which students were introduced to "pause" and "listen" program cards. This lesson pulls on the memory of students to use these cards, again, but repurposing them to help plobot learn games at the park instead of singing and dancing in a performance.

Learning Objectives:
- Start understanding the flow of software by the introduction of conditionals
- Become fluent on the inputs that a machine can have

Activity 9

Title: Plobot as Top Chef

Description: Students learn the "repeat" program card more deeply and witness how it is connected to the programming concepts of "de-bugging", "iteration" and "looping". Experiment with using this program card to help them design shapes and explore new robot movements. Students then combine accumulated programming knowledge to create their own specially-crafted "top chef" food creations. By using capability of "repeat" program card to design shapes for these foods.

Learning Objectives:
- Understand that software could be used in different environments to solve daily problems
- Practice concepts acquired previously to help them consolidate their knowledge

Activity 10

Title: Invent your own Plobot

Description: Students finalize their session 1 of Plobot by creating their own robot! While recognizing that it doesn't combine ALL robot aspects (missing sensor and thinking), the robot building exercise exposes kids to the inner-workings of robot motor hardware and initiates them using their fine motor skills for robot design. Students can also tap into their creativity by designing the aesthetic of their robot model! Students can take these robots home to share and as a reminder of what they've learned with Plobots.

Learning Objectives:
- Understand that robots are something they can create themselves
- Practice fine motor skills in a DIY activity