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INTRODUCTION TO MATATALAB EDU

Background Introduction

Founded in July 2017, Matatalab is an education technology company striving to provide innovative STEAM education solutions for educational institutions and families worldwide. Matatalab combines technology and education to develop a series of tangible coding products in a bid to cultivate computational thinking skills through coding enlightenment and to help children prepare for the digital world.

Education Mission

Matatalab Edu is committed to unlocking children's potentials and helping them prepare for the digital world. Matatalab tangible coding language is the main technology of Matatalab Edu. Based on this core technology, Matatalab Edu does not only teach children coding, but also cultivate their computational thinking and 21st century skills.

Matatalab's Contribution to Education

Matatalab is widely designed for children aged 3-9⁺. It can be used in and out of the classroom in different learning environments, such as a formal computer science class, a music or arts class, an afterschool club or a makerspace.

Usage in a Formal Computer Science Class

According to the plan of different school districts, the computer science teacher or STEAM teacher could be the instructor in the formal class environment. The teacher could start the lesson with Matatalab curriculums, including the Lite Curriculum, Learning Station Curriculum and the Extracurricular Curriculum.

After getting familiar with Matatalab, the teacher could explore different contents (mathematics, ELA, Science, music and art). Matatalab Edu and lots of creative teachers have produced such activities or lessons.

Matatalab Edu Activity Information could be found in: ### https://matatalab.com/en/activity

A Music or Arts Class



Matatalab Pro Set including the Music Add-On, Artist Add-On and the Animation Add-on are the most popular parts of Matatalab. With these Adds-on, children could compose amazing songs and create arts works.

We encourage the music or arts teachers to incorporate Matatalab into their majors to make classes creative and amazing.

Afterschool Club or a Makerspace



People in the 21st century are all faced with the unknown digital age. Educators are working harder to help students prepare for the future. More and more schools or public libraries have been building Robots, Coding or STEAM clubs or Makerspaces. Matatalab Edu is a suitable tool to be used in such a club or makerspace.

Competitions



Matatalab is a hands-on play tool. This feature makes Matatalab a good tool for competitions. Competition does not only make children demonstrate their learning skills, but also enables them study from one another. It is always a great idea to organize a competition for your school such as Matatalab Code Night or STEAM Evening.

Main Features of Matatalab Products

- Coding without a screen: Matatalab turns coding into a tangible, developmentally appropriate coding experience that reduces screen time to protect young children's health, increases engagement and enhances learning.
- Words free: The coding blocks have intuitive graphical symbols. They thus build confidence in students so that they are able to predict the movement of the robot as well as test and verify their reasoning.
- Learn to Code, Code to Learn: Matatalab tangible coding can help kids discover the fun of basic coding ideas such as sequencing and conditionals. It can also enable them to learn different curriculums knowledge by coding, such as music and arts.
- Hands-On Play: Children easily learn new things through playing. Matatalab creates a hands-on game play for kids to learn abstract coding ideas.

Main Features of Matatalab Edu Curricula and Activities

- Scene: Most Matatalab classes or activities are demonstrated on different maps.
 These maps provide children interesting senses which motivate them to study.
- Creativity: Children and teachers are encouraged to create their own topics or stories.
- Collaboration: 2-4 children are suggested to use one Matatalab set. They need to build or challenge coding tasks together. In certain competitive activities, children in one team need to work closely to reach certain goals.
- Competition: The hands-on nature of Matatalab makes it a perfect tool for competition.
 Students quickly acquire knowledge or skills through competition.
- Cross-curricular: Matatalab is not only a coding tool, but also a tool to explore interdisciplinary knowledge or skills.
- Iteration: Children learn by making mistakes, evaluating them, revising their plans, and trying again. They continue to do that until they get it right. Iteration is not just how to code, but how we learn. Matatalab is a good tool that teaches children the learning process. Children can easily detect their mistakes through the movement of MatataBot, and equally directly revise their plan by changing the tangible blocks.

WHY IS MATATALAB EDU A VALUABLE EDUCATIONAL TOOL?

STEAM Education

In the 21st century, compared to STEM (Science, Technology, Engineering and Mathematics), a growing number of people are claiming that STEAM (Science, Technology, Engineering, Arts and Mathematics) should be the main driving force behind the K-12 education.

Matatalab provides a solution for teachers to develop STEAM education in their class-rooms. The feature of tangible coding blocks can help students learn science, technology, engineering, arts and mathematics in a very direct way.

Answers collected from different instructors using this product say Matatalab provides some ideas for integrating Matatalab in STEAM education.

- Duke School Kindergarten Teacher "When they said my kids would learn to code with Matatalab I really didn't believe. But really you should see them now, and listen to them. We use them to write letters and numbers and my 5- and 6-year-olds totally get it! If you listen, you'll hear them talking about math, counting how many steps, talking about degrees of angles to make their letters. I especially love hearing them talk about the coding blocks and using words like ... loop. Matatalab is my number one pick for hands-on learning" (2020).
- The International Preschool of Raleigh (IPR) Match Teacher "One of the best things is seeing my older students using the Artist pack to understand and identify angles. I give them a worksheet with the type of angle and a description. They use the robot to draw an example of that angle. Could we do it without the robot, of course, but the kids are a thousand times more engaged using Matatalab to do the work" (2020).
- Tareke Kindergarten Teacher "Children select the music that will sound when MatataBot meets the gnomes, create a program with which Matata travels through the village of gnomes. Fix the concept of 'cycle'. MatataBot becomes a musician. Children set a Christmas song program by reading music blocks from a card. Children also spent some time using Artist add-on create a shape and decorate it to become New Year Gift" (2020)

Educational Value and Alignment to Standards

Matatalab Edu provides various curriculum samples and activities online. School teachers who desire to use Matatalab in their classrooms or parents who wish to use Matatalab at home can both find rich educational resources. Every sample curriculum and activity provides detailed instructions and additional resources, such as videos or images, to help instructors and teachers use Matatalab even without programming expertise.

Curriculums and activities provided by Matatalab are aligned to the Computer Science Teachers Association (CSTA) standards, the International Society for Technology in Education (ISTE) standards, the Next Generation Science Standards (NGSS) standards, and the Common Core ELA and Math.

Computational Thinking

Computational thinking is the use of basic concepts of computer science for problem solving, system design, and understanding human behavior. In other words, computational thinking is a way of thinking relating to problem solving, rather than specific subject knowledge. This kind of thinking needs to use the basic concepts of computer science and has a wide range of uses.

Computational thinking is one of the key concepts of Matatalab. It can help students develop computational thinking in rounding off various programming curriculums and activities using Matatalab products.

The following are examples that demonstrate how Matatalab help students build their computational thinking skills.

Computational Thinking Skills	Description	Examples
Decomposition	When students are faced with complex problems, they can decompose them into smaller and more manageable problems. By solving these small problems, they finally develop the ability to solve this complex problem.	MatataBot wants to move from the starting point to the destination, what should it do? First, students need to use computational thinking to disassemble the problem. To complete this task, students need to first plan the route on the map, select the appropriate coding blocks, and place them on the control board.
Pattern Recognition	Students are able to find similarities or differences in multiple little problems, which is essential to help solve complex problems.	There are many routes from the starting point to the destination. In different routes, the direction changes and distance of the MatataBot are different. Students have to find a simple and convenient route for the robot to reach.
Abstraction	Students can filter out (or ignore) unnecessary details and focus on the important parts. Essentially, this makes the problem easier to understand and solve.	In the route planning process, students need to make reasonable abstractions and pay attention to the most important steps, such as drawing a road map in their brains or on paper. They need to differentiate the left from the right and MatataBot's left and right, respectively, to later make preparations for correct programming.
Algorithm	Students can determine the appropriate steps to take and organize them into a series of commands (plans) to solve problems or complete tasks correctly.	Finally, students need to plan the route, such as move forward-turn right-move forward-turn left-move forward-turn left-move forward, and then programming. MatataBot will complete the task according to this program.

21st Century Skills

Recently, 21st century skills are quickly developed. Educators, administrators and other stakeholders believe that Critical Thinking and Problem-Solving, Creativity, Communication and Collaboration should be the essential and required skills for everyone. The tangible coding blocks and a large number of online curriculums and activities in Matatalab Edu allow students to significantly improve their 21st century skills in the process of co-programming with other students using Matatalab products.

Response from instructors also shows the connection between using Matatalab and 21st century skills:

Judy Quintero-Pre-K teacher.

"What skills did it develop?

Collaboration, memory, small-motor skills, language/communication, sequencing, directional skills, debugging, parameters, planning, estimating, counting, decomposition, cause and effect, problem-solving, storytelling, confidence..."

Erica Phillips- Sir Charles Tupper School Teacher.

"What skills did it develop?

Communication, problem solving, collaboration."

Project Based Learning

Project Based Learning (PBL) is different from traditional education. A project related to real world problems and its related requirements are given to students, and at the end of the project, they need to produce authentic products. In the process of PBL, the instructor acts as a coach or a guide, and consequently does not explain each activity step by step.

Matatalab's various theme maps and tangible coding blocks help in the successful integration of PBL and Matatalab education. The hands-on coding experience can help students learn fast in the PBL and develop their engagement. Students can use the map and coding blocks in order to complete their project and also help develop their 21st century skills.

WHAT DOES MATATALAB EDU INCLUDE?

Getting to Know Matatalab Products

Matatalab Lite



A Remote Control Interactive Coding Robot Set for Kids Aged 3+.

Developing problem solving skills, critical thinking, creativity and collaboration to your kids through hands-on coding gameplays. Kids discover the fun of basic coding concepts such as sequencing, conditionals and debugging and will constantly be challenged with advanced tasks.

Key features:

- No screen needed. Kids can construct their knowledge on coding and logic with their hands directly
- Gamification. Kids learn through play and feel that coding is simple
- Low floor high ceiling. With 3 modes to enlighten early coding concepts from easy to advanced
- Gender neutral design. Accessible to both girls and boys
- 3 Modes

Control Mode --- Direction recognition

Coding Mode --- Sequencing learning

Sensor Mode --- Conditional judgement

Matatalab Coding Set







An Entry-Level Hands-on Coding Robot Set for kids aged 4-9+

Let kids develop the necessary cognitive abilities and learn coding skills from a young age. Kids use their imagination to create infinite possibilities using coding blocks, by controlling a robot car through coding algorithms. Kids receive instant feedback, and quickly learn that coding is simple.

Key features:

- Intuitive symbol design. Use directional language and no literacy required
- Gamification. Kids learn through play and feel that coding is simple
- Packaged with challenge booklets. Learn from easy to advanced in 3 steps
- Easy to expand. Available to play with Music/ Artist/ Animation/ Sensor add-on
- Compatible with Lego®. Create your own coding adventures and have limitless fun

Matatalab Pro Set









A Comprehensive Hands-on Coding Robot for kids aged 4-9.

Let kids develop the necessary cognitive abilities and learn coding skills from a young age. Kids use their imagination to create infinite possibilities using coding blocks, by controlling a robot car through coding algorithms. Kids receive instant feedback, and quickly learn that coding is simple. Plus with the abilities to play music and drawing, it enables young kids to be more creative and explorative.

Key features:

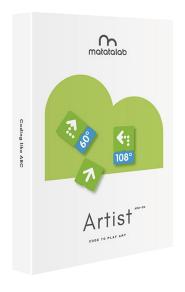
- No screen needed. Kids can construct their knowledge on coding and logic with their hands directly
- Intuitive symbol design. Use directional language and no literacy required
- Gamification. Kids learn through play and feel that coding is simple
- Packaged with challenge booklets. Learn from easy to advanced in 3 steps
- Compatible with Lego®. Create your own coding adventures and have limitless fun

Specitication

MatataBot battery / Matatalab Controller battery	500mAh Li-ion battery
Command tower battery	2000mAh Li-ion battery
MatataBot / Command tower/ Matatalab Controller USB Type-C input	DC5V/2A MAX
Pairing	Bluetooth
Range	5-6m
Operating temperature	0°C~40°C
Storage temperature	-10°C~55°C

- Toy is not intended for children under 3 years old.
- The adapter used for charging the product (not included in the package) can not be used as a toy.
- The toy shall only be used with a transformer for toys
- To clean, wipe the product gently with a clean damp cloth while the product is turned off and without any power & charging.
- Children should play the product under the guidance of adults.
- Falling from high position may cause malfunction.
- Taking apart, amending or rebuilding the product without the official instruction may cause malfunction. Do not use or charge the product beyond the range of operating temperature.
- Full charge the product when it is not used for a long period of time. Charge the product at least once
- every three months.
- Use the adapter of recommended specification (5V/2A) to charge the product.
- Regularly check whether wires, plugs, shells or other components are damaged. Do not use when it is damaged.

Matatalab Artist Add-on







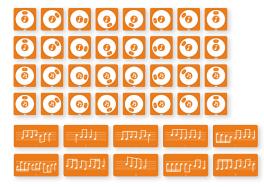
Kids can draw beautiful graphics and pictures through programming, towards the more advanced stages of coding their mathematical theories of geometry also improves. Coding Set is required to work with.

Key features:

- Draw shapes
- Learn mathematical concepts
- Learn geometry

Matatalab Musician Add-on







Kids learn notes and beats through programming. With free combination, kids can compose their favorite music, or even create their own now!

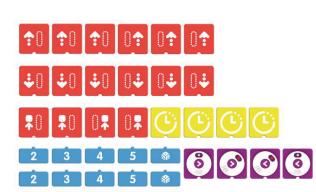
Coding Set is required to work with.

Key features:

- Learn notes and beats
- Compose music
- Create music

Matatalab Animation Add-on



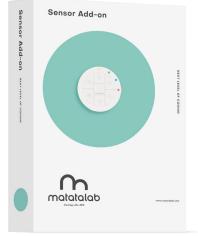


The Animation Add-on takes advantage of MatataBot's Go-Draw feature, enable kids to program the robot to draw amazing shapes and move in unique ways. They can also customize the Matabot's eyes with different colors and make funny sounds! Finally, kids

can now animate the MatataBot how they like through hands-on play! Key features:

- Go or draw circles, curve lines or S shape
- Make a U-turn
- Control the color of the LED eyes

Matatalab Sensor Add-on











The Sensor Add-on enhances the coding adventure, enable kids to program the MatataBot to detect and react to obstacles, colors, and even sound. Kids can also control the onboard LED lights embedded into the Matatalab Controller to customize their code to their imagination.

Key features:

- Detect sound, color, light, Infrared(IR), gyro, touch, message sending and receiving
- Control the onboard LED lights on the Matatalab Controller

МАТАТА Мар



MATATA Map include 16 pieces (10x10cm) magnetic grids with 6 sets of story themed cards, which allow the kids' limitless backgrounds to build upon, even a 3D one. Each grid can be opened and inserted with different story cards that are double-sided.

Key features:

- Magnetic and support to build a 3D backgrounds
- Can be opened and changed into limtless backgrounds
- Double sided

MATATA FRIENDS





3 new Silicone covers for the robot which are, sky blue unicorn, pinky bunny and orange cat designs. Kids can now decorate their MatataBot as their favorite characters! Tail hook compatible with Lego bricks.

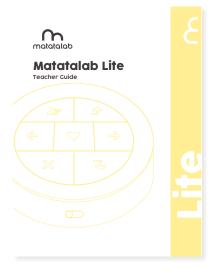
Key features:

- 3 new characters
- Personalized play
- Tail hook compatible with Lego bricks

Getting to Know the Curricula

So far, Matatalab provides a total of 8 curricula. Every teacher can choose their own suitable teaching courses according to the teaching products and the age of the students.

Matatalab Lite Teacher Guide



Matatalab Lite will be the main product in this curriculum. There are 16 lessons in total. Computational thinking is a major focus of these lessons. Starting with the kinds of "thinking" a machine/robot has, and replicating and utilizing this thinking as a computer programmer would. The implementation of problem solving and patterns of thinking alongside powerful ideas from computer science, maths, and language can make pre coding and coding powerful and meaningful learning opportunities for very young children, providing benefits beyond the preschool classroom. Besides computational thinking, students' small motor skills,

executive function skills, language skills, mathematical skills, and problem-solving skills will also be developed.

Matatalab 4-6 Level 1 and Level 2

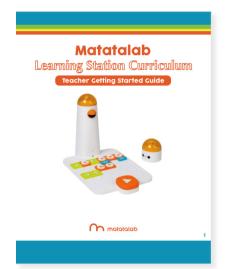




For these two curricula, Coding Set will be used in Level 1, while Pro Set will be used in Level 2. Each Level includes 20 lessons. The main aligned standards are the CSTA and the Guideline to the Learning and Development of Children Aged 3–6. In Level 1, students will learn basic coding skills. There are two main themes. The first eight lessons talk about the story of the Old Cat and the Little Mouse, while the last 12 lessons talk about the theme of the Car. In Level 2, the 20 lessons are divided into 5 units.

- Unit 1 Detective: Applying basic coding skills
- Unit 2 Gardener: Mastering the Loop concept
- Unit 3 Artist: Using the Coding Set to create artworks
- Unit 4 Musician: Using the Coding Set and Musician Add-on Set to complete the tasks
- Unit 5 Carnival: Comprehensive courses

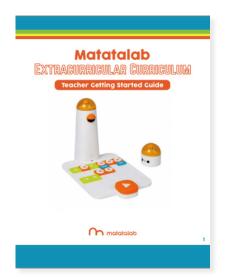
Matatalab Learning Station Curriculum



Matatalab Coding Set will be the main product used in this curriculum. The main standards aligned are the ISTE, the NGSS, the CSTA, and Computer Science Network. Twelve lessons are included in this curriculum. Lessons 1–4 can help students get familiar with Matatalab Coding Set and help them learn how to utilize coding blocks. Lessons 5–7, obstacles and destination flags will be introduced to help students create maze. Students can thus use the maze environment and the MatataBot movement to create stories and poems. Lessons 8–10 can help students improve the understanding of maps and grids to help students create a

map and use coding blocks to navigate around the map. In Lessons 11-12, Artist Add-On and Musician Add-On will be introduced. Students use music and angle blocks to create unique and original works.

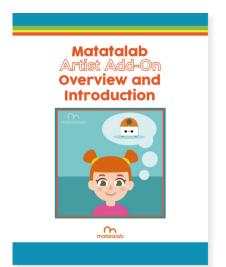
Matatalab Extracurricular Curriculum



Matatalab Coding Set plus Musician Add-On and Artist Add-On are used in this curriculum. The main standards aligned are the ISTE, the NGSS, the CSTA, and Computer Science Network. There are 12 lessons in total. Lessons 1-4 help students get familiar with Matatalab Coding Set and know how to establish coding sequences to help MatataBot finish directional movements. In Lessons 5 and 6, Musician Add-On will be included to help students use Music Blocks and Matatalab Coding Set together. In Lessons 7 and 8, students will use maps and Matatalab Coding Set to create stories. In Lessons 9 and 10, Artist Add-On will be included,

students can use advanced coding blocks to create original and unique artistic creations. In the last 2 lessons, students can use Matatalab to create an original board game and an interest-based project.

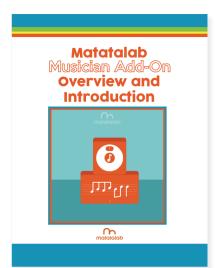
Matatalab Artist Add-On Curriculum



Artist Add-On set will be the main product in this curriculum. The main aligned standards are the NCAS (National Core Arts Standards), and the CSTA. In the first 5 Lessons, students will learn how to code and manipulate MatataBot in order to code, create and display a variety of simple shapes. In Lessons 6, 7, 8, 9 and 10, students will learn how to code and manipulate MatataBot in order to code, create and display a variety of complex designs. In Lesson 11, the design will be transformed from 2D to 3D, a geometric net that can be assembled into a 3D geometric shape by students using MatataBot. In the last lesson, students will learn

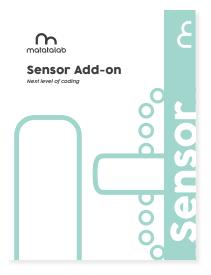
how to code and manipulate MatataBot in order to code, create and display words.

Matatalab Musician Add-On Curriculum



Musician Add-On set will be the main product in this curriculum. The main standards aligned are the NAfME (The National Association for Music Education), and the CSTA. This curriculum sorts to help students understand the use of music notation with Matatalab music blocks coding to create melodies. This curriculum is highly recommended for music teachers.

Matatalab Sensor Add-On: Teacher Guide



Matatalab Pro Set, Sensor Add-On, and Animation Add-On will be the products students need to use in this curriculum. The main aligned standards are Common Core, and the ISTE. There are 16 lessons in total, and the main feature of this curriculum is that, there is no strong connection among these lessons, as every lesson is designed for different ages' of students. Instructors can thus choose suitable lessons from this curriculum according to their students' age and level.

Matatalab Animation Add-On: Teacher Guide

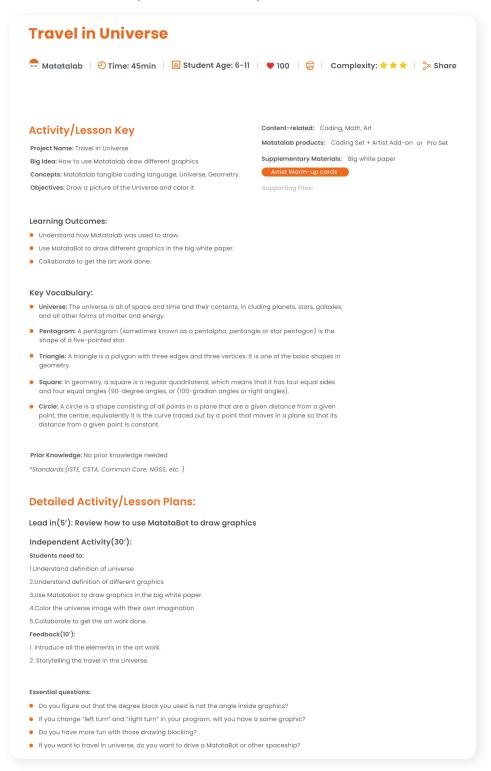


Matatalab Pro Set, and Animation Add-On will be the products students need to use in this curriculum. The main aligned standards are Common Core, and the ISTE. There are 16 lessons in total, and the main feature of this curriculum is that, there is no strong connection among these lessons, as every lesson is designed for different ages of students. Instructors can thus choose suitable lessons from this curriculum according to their students' age and level.

Getting to Know the Activities

Matatalab also provides rich activities in addition to curricula. Teachers can find the activities they want to teach according to their categories: such as maths-, music and arts-related, competitive activities, PBL activities, etc. You can also find more accurate activities based on students' age and products used.

This is one example of an activity:



If you want to know, please visit:

https://matatalab.com/en/activity

Professional Development

To help teachers fully prepare to use Matatalab in class, Matatalab Edu provides professional development to all teachers. Three formats of professional development are available: Self-Guided Course, Virtual Training, On-Site Workshop.



Self-Guided Course



Virtual Training



On-Site Workshop

If teachers are interested in this, please visit our professional development website at:

 https://matatalab.com/en/professional-development

MATATALAB CERTIFIED EDUCATOR (MCE)

Matatalab Course Certificate

Matatalab Edu is a professional STEAM education platform. In this platform, educators could join our professional development program to learn how to adapt Matatalab to their working environment. Educators can study how to create activities and share them with others.

To help educators get to know Matatalab better, we provide three self-guided courses: Matatalab Edu Lite Course, Matatalab Edu Coding/Pro Set Course and Matatalab Edu Coding Advanced Course. Once registered on Matatalab Edu account, three courses will be available free. A corresponding certificate will be awarded at the end of each course.

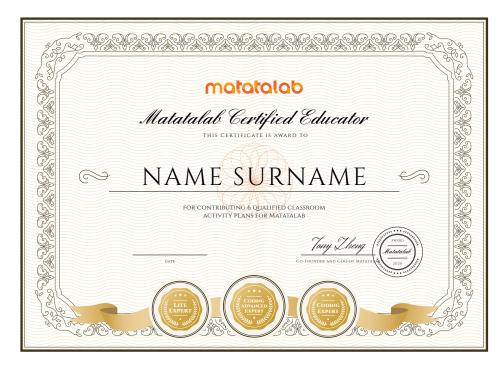




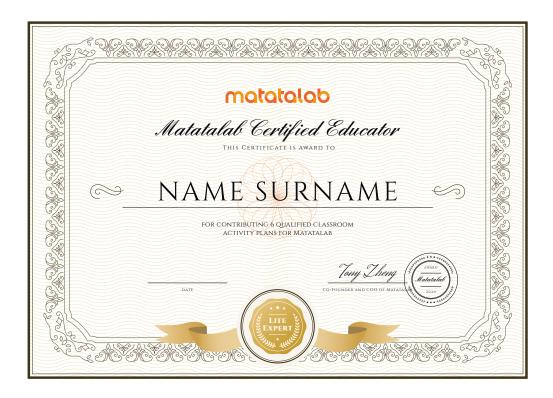


Matatalab Certified Educator

Once the educator completes one of the three courses and gets one Course Certificate, they will move to the second level: create their own activities. Once the educator provides 6 qualified activities per year, Matatalab will award the title of Matatalab Certified Educator to him/her.



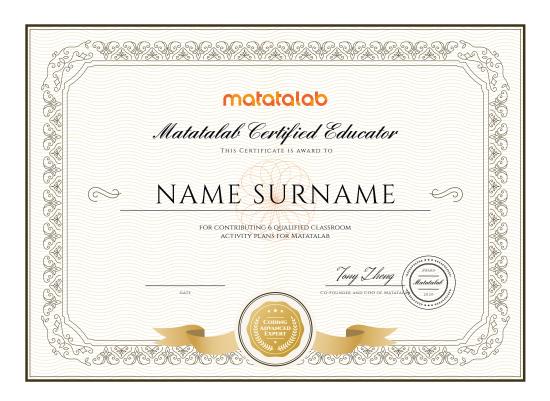
The educator who completes the Lite course shall provide 6 activities based on Matatalab Lite.



The educator who completes the Coding/Pro Set Course shall provide 6 activities based on Matatalab Coding/Pro Set.



The educator who completes the Coding Advanced Course shall provide 6 activities based either on Animation Add-on or Sensor Add-on.



For more information on how to create a Matatalab activity, please check here ⊄

All the MCE will be placed in Matatalab Edu talent pool. Matatalab Edu hopes to have further cooperation with the MCE. The MCE will benefit in several ways:

- 1 Award of the MCE Certificate and T-shirt worth 30 USD.
- 2 Matatalab will select excellent created activities by the MCE, and assemble them into books. The MCE as the contributor, his/her name will appear in the published book.
- 3 When Matatalab launches its latest products, such as new maps and activity packages, the MCE can apply for and stand the chance to get them for free.
- Matatalab participates in educational exhibitions all around the world every year. Such as the ISTE (the U.S.), BETT (the U.K.), FETC (the U.S.), MIEF(Russia), STEM EXPO (Japan), etc. On these occasions, Matatalab invites the MCE to either host a workshop or a presentation.
- Matatalab will select outstanding MCE in each country and region as our guests or partners to take part in the Virtual Training or On-Side Workshop.

SUPPLEMENTARY RESOURCES

FAQ:

If you have any questions, please visit our FAQ website.

https://www.matatalab.com/en/product-support#faq

Administrator Guide:

Administrator Guide is also available online, please share it with school administrators if they are interested at Matatalab Edu.

Social Media:

f Facebook:

https://www.facebook.com/matatalab

▶ YouTube:

https://www.youtube.com/matatalab

Twitter:

https://twitter.com/matatalab

in LinkedIn:

https://www.linkedin.com/company/matatalab

OInstagram:

https://www.instagram.com/matatalab_/

Blogs:

Visit our blogs for more stories on Matatalab: https://matatalab.com/blog/

Case Studies: