

Strawbees®



Artbots and Architecture

Strawbees®



CREATIVE EDUCATION FROM *Finland*

Featured Educators



Lindsay Balfour

Sweden
lindsay@strawbees.com
[@MakeKeyLindsay](#)



Elena Piñero

Finland



Jere Keskinen

Finland



Pihla Meskanen

Finland

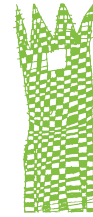
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About this Playinar



Learn about creative education using architecture & design as holistic real-world phenomena to integrate STEAM subjects from Arkki International, with 26 years of experience and programs approved by the Finnish Ministry of Education.

Halfway through join for a short workshop of building Artbots with Quirkbot. Experiment coding movement and visualize the robot's movement in an interesting way with markers, watercolor, or any drawing media you have at home.



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CREATIVE EDUCATION FROM *Finland*

CREATIVE EDUCATION FOR FUTURE INNOVATORS



Award-winning Finnish educational development since 1993



Official member of Education Finland Programme coordinated by the Finnish national Agency of education



Chosen for HundrED Collection 2020, of inspiring innovations that are changing the face of K12 education today



Finalist for the WISE 2020 awards for its impactful and innovative approach to education



UNICEF 2019 CFCI Inspire Award winner - Meaningful Child Participation







DESIGN DEED OF THE YEAR 2018

Design Deed of the Year 2018

Shortlisted for Helsinki Design Award 2018

Arkki School of Architecture for Children and Youth

has received the Design Deed of the Year 2018 award, the selection criteria being: design, involving design in everyday life and sustainability. Helsinki, 12 September 2018.

 Tora Lovén, Association for Finnish Work
 Anneliina Hänninen, Helsinki Forum Ltd, Children's Director
 Kari Kuitanen, Design from Finland, Design Innovation Director, Helsinki Innovation Center
 Kristina Kuitanen, Chairman, Children of Finland

ASSOCIATION FOR FINNISH WORK



Arkki co-founder Pihla Meskanen was conferred in 2018 the honor of the Knight First Class of the Order of the Lion of Finland, by President of the Republic



DESIGN
FROM
FINLAND



“Arkki has done outstanding work in giving architectural education and promoting interest in architecture for almost 25 years”

“Architectural education guides us to comprehend our own habitat and the world, to see it with new eyes.”

“It prepares us for contemporary challenges and helps us in making wise choices”

Sanni Grahn-Laasonen
Minister of Education and Culture, Finland



**Paavo
Arhinmäki,
Minister of
Culture and
Sports
Ministry of
Education and
Culture, 2009.**

It is the duty of parents to be interested in their children's experiences, to show them architecture and to tell about its value as part of our culture. And our responsibility does not end there, but our children's habitats must also be visually interesting, comfortable and in good condition.

Children should have the opportunity to influence their own planning of their immediate environment. At the Ministry of Education and Culture, we are working to increase the number of children consulted and the implementation of children's ideas in the field of art in the coming years.

“Arkki School of Architecture has been working successfully for 20 years in basic education in children's culture and art. I warmly congratulate your school and hope that the architectural enthusiasm of children and young people will continue to be vibrant in the years to come!”

DESIGN
FROM
FINLAND



International conference *Creating the Future 2.0* opening speech organized by Arkki (extract)

**Anders Addlercreutz,
Member of the Finnish
Parliament**



“We don’t need to be supercomputers, but we need to be imaginative, creative, and able to think about new things and solution that don’t yet exist. “

“And that is what creativity is (...). To see possibilities in places where the ordinary thought-process doesn’t see a way out. To not accept the status quo or the limitations of the ordinary solutions. These are things that can and should be taught and trained.”

“A creative education, a creative background, can help in all fields of work.”

“The creative process of an architect itself is an immensely useful tool for any profession. When you start designing a project you are faced with numerous often conflicting requirements.”

“We need a mindset that sees new solutions, that has the ability to kill its darlings and think anew.”

Opening speech at International conference creating the Future III organized by Arkki. November, 2019 (extract)

Arkki International team in Strawbees Playinar Artbots and Architecture, August 20, 2020



Pihla Meskanen
CEO Arkki International



Jere Keskinen
Arkki Program
coordinator



Elena Pinero
Communication

Arkki after-school program is based on the National Core Curriculum of Creative Education in Finland

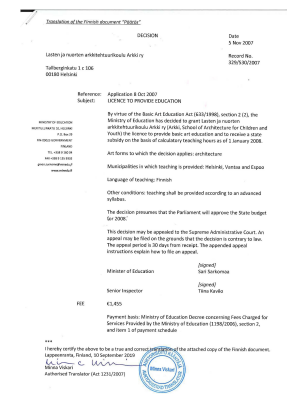
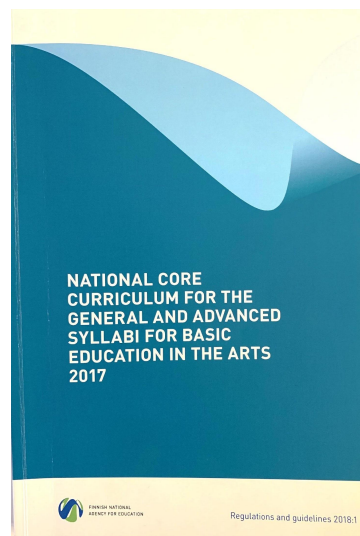
Arkki Curriculum follows the “National Core Curriculum for the Advanced Syllabus for basic Education in Architecture”

The steering of basic education in the arts consists of

- the Act (633/1998) and Decree (813/1998) on basic Education in the Arts
- the regulation of the Finnish national Agency for Education on the national Core Curriculum for basic Education in the Arts

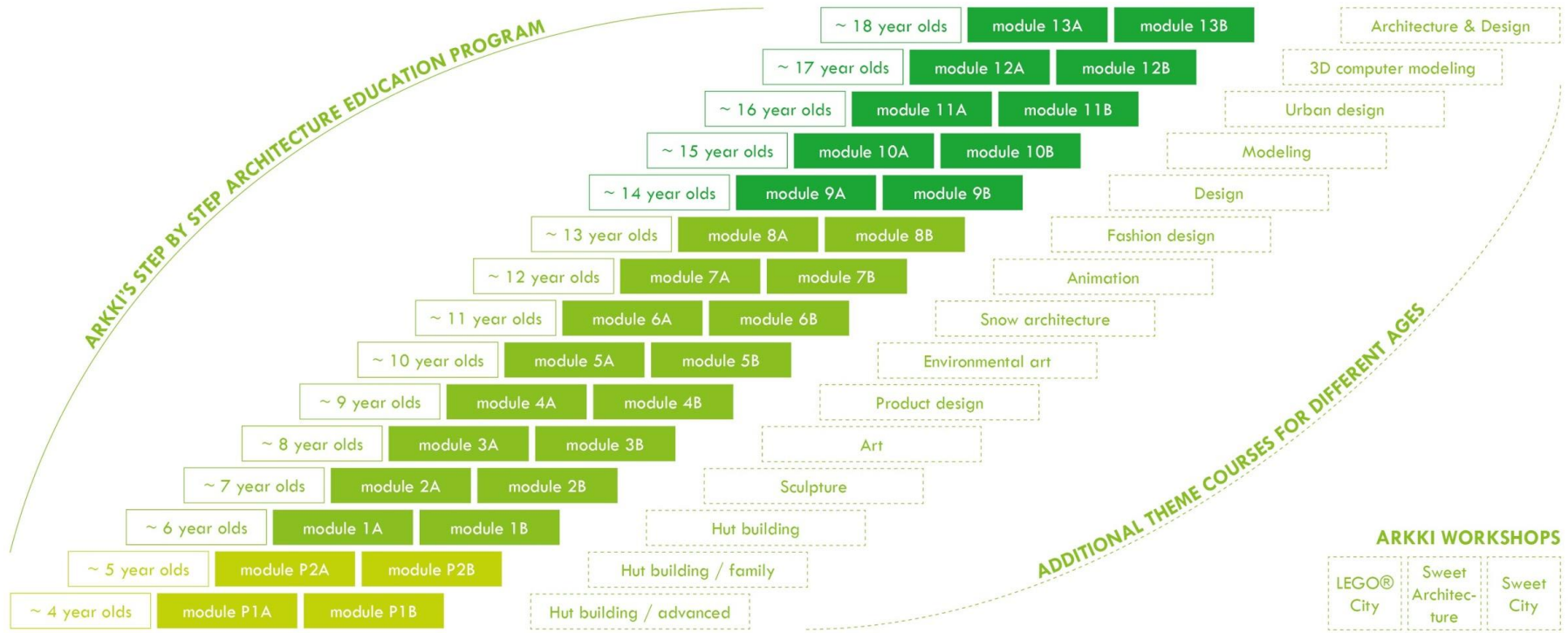


Ministry of
Education
and Culture



ARKKI'S CREATIVE EDUCATION LONG -TERM PROGRAM

Step by step 15 year curriculum + Theme Courses (2000 hours)



STEAM through ARCHITECTURE - Arkki Curriculum integrates different subjects through Architecture and Design

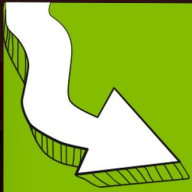
SCIENCE
TECHNOLOGY
ENGINEERING
ARTS
MATHEMATICS
HUMANITIES
SOCIAL SCIENCES



Architecture is
interdisciplinary and
hence a perfect way to
learn **STEAM** subjects
and even beyond

Arkki program supports the development of Innovation Skills





**CREATIVITY IS ABOUT
MAKING NEW
CONNECTIONS
WITHIN THE BRAIN**





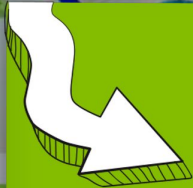
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**CREATIVITY IS A
SKILL TO BE
PRACTISED**



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**CREATING IS MAKING
NEW COMBINATIONS
OF EXISTING
KNOWLEDGE**

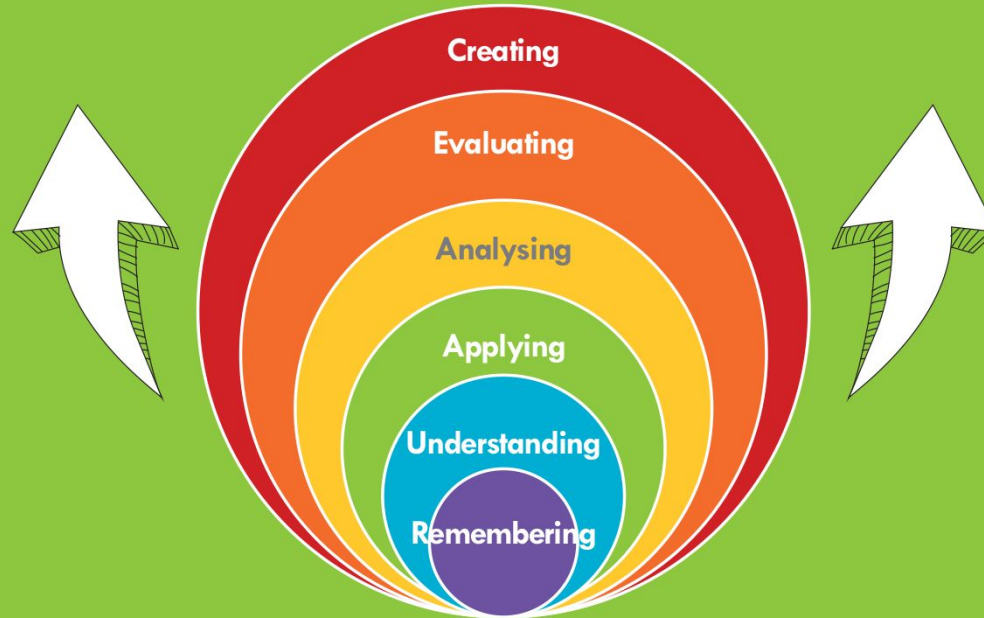




**SOMETHING
NEW TO THE
INDIVIDUAL**

CREATIVITY IS THE HIGHEST SKILL OF THE HUMAN BRAIN

HOT skills = Higher order thinking skills



Lower order thinking skills

**CREATIVITY IS THE
HIGHEST SKILL OF THE
HUMAN BRAIN**



Arkki pedagogy intertwines the '4P's' of creative learning

Projects

Peers

Passion

Play





POPULAR HUT BUILDING COURSES IN FINLAND SINCE 1994

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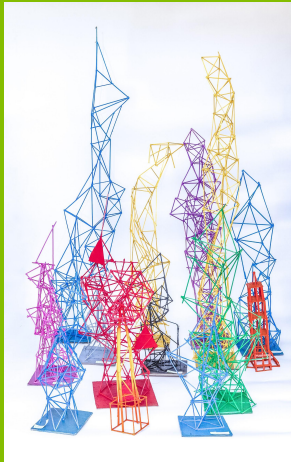
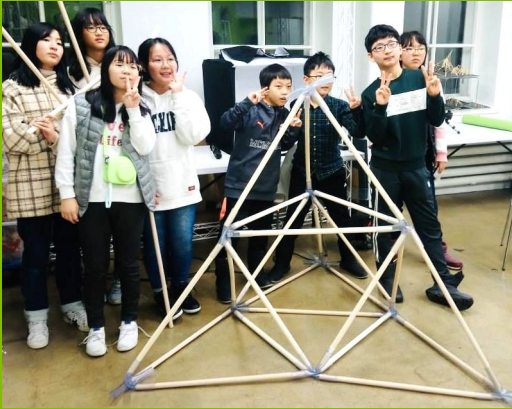
HUT BUILDING COURSES FOR INTERNATIONAL VISITORS IN FINLAND SINCE 2015

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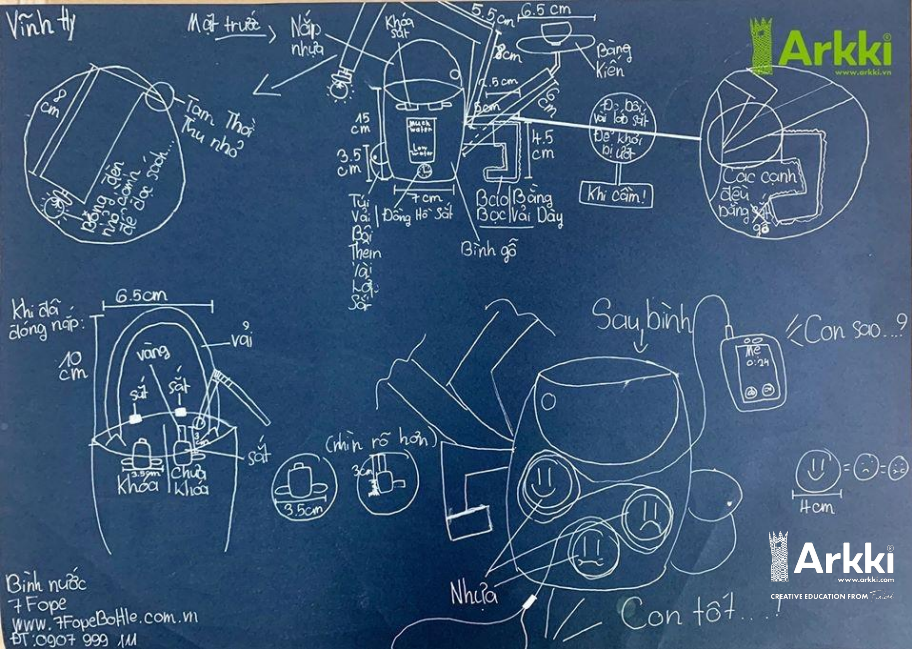


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3D Thinking, Curiosity, Creativity, Collaboration, Communication



Design Thinking; Emphatizing, Defining, Ideating, prototyping, Testing



SUSTAINABLE THINKING



ARKKI & GLOBAL GOALS FOR SUSTAINABLE DEVELOPMENT



UPCYCLING - FASHION DESIGN COURSE FOR KIDS



Upcycling



Goal 12:
Ensure sustainable
consumption and
production
patterns







Collaboration





Team Work



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Teaching
HOW to think
- not **WHAT** to think



Learning by succeeding PLAY–CREATE–SUCCEED

Play Fun Learning – using play as a means to explore. Enjoying the learning experience enhances the learning impact!

Create There are many equally good possible solutions in architecture (not “right” answers)

Succeed We believe that learning through success is much more effective than learning through feeling of failure.

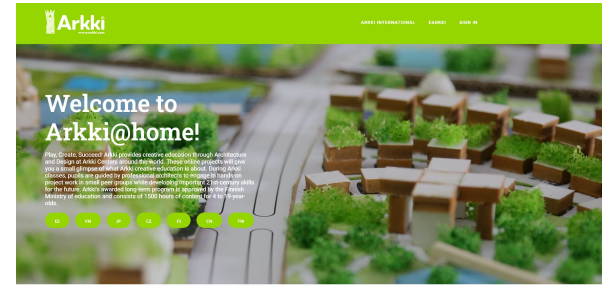


ARKKI@HOME FREE ONLINE PROJECTS IN 8 LANGUAGES

Arkki@home hands-on online projects to support curiosity, creativity, and innovation for families during COVID lockdown.

 material in 8 languages

 participants from 43 countries



Have a Taste of Creativity with our free #Arkkihome Projects!

In these times of severe restrictions, Arkki has tailored creative #Arkkihome hands-on projects to support curiosity, creativity and innovation @home. Adopted from the Arkki curriculum, designed by experts in Finland



CREATIVE CLASSROOM

by *Arkki International*

PHENOMENON-BASED LEARNING PROGRAM FOR SCHOOLS



Powered by



CREATIVE EDUCATION FROM *Finland*

Click [HERE](#) to learn more

Teaches
HOW to
think
- not **WHAT**
to think



Creative Classroom is a complete phenomenon-based learning program for schools that integrates:

21st century skills

STEAM and beyond subjects

Finnish Curriculum*

Click [HERE](#) to watch video

DESIGN
FROM
FINLAND



* Creative Classroom is built upon the Finnish National Core Curriculum of Basic Education

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CREATIVE CLASSROOM

Based on 26 years of know-how in the field of phenomenon-based creative learning and curriculum development.



Ready-to-use project plans for class



Step-by-step instructions



Pedagogical toolkit for teachers

Each Creative Classroom learning package contains 24 h of age-specific phenomenal project plans to use in class, methodology and training for one teacher.

The future of learning will be multidisciplinary and focused on skills and competencies such as creativity and critical thinking

Phenomenal learning unit 1



Ready-to-use creative Classroom learning packages

Each Phenomenal learning package has a learning unit 8 ready-to-use project plans for the classroom, plus Teacher training toolkit, certification, and methodology to teach as in Finland.

Unit one, for example, studies the concept of ME, in relation to Art, Math, Language(s), Biology, Craft, and Architecture in a fun and engaging way. Pupils are introduced both to 2D and 3D geometry, as well as functions of the human body.

Each unit is divided into 8 different projects that are structured to follow the 5E Inquiry Learning Model.

All Courses

Teacher Toolkit - Pedagogical Self-study



All Courses

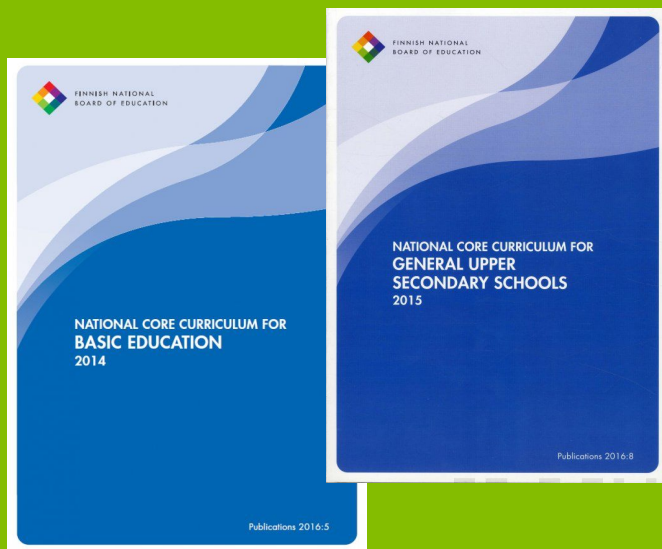
Teacher Toolkit - Methods



“CREATIVE CLASSROOM” – PHENOMENAL LEARNING FOR SCHOOLS

Based on the Finnish National Core Curriculum

As a basis content, Arkki Program “Curious Class” uses the Finnish National Core Curriculum for grades 1-9 and the national curriculum for General Upper Secondary schools, grades 10-12



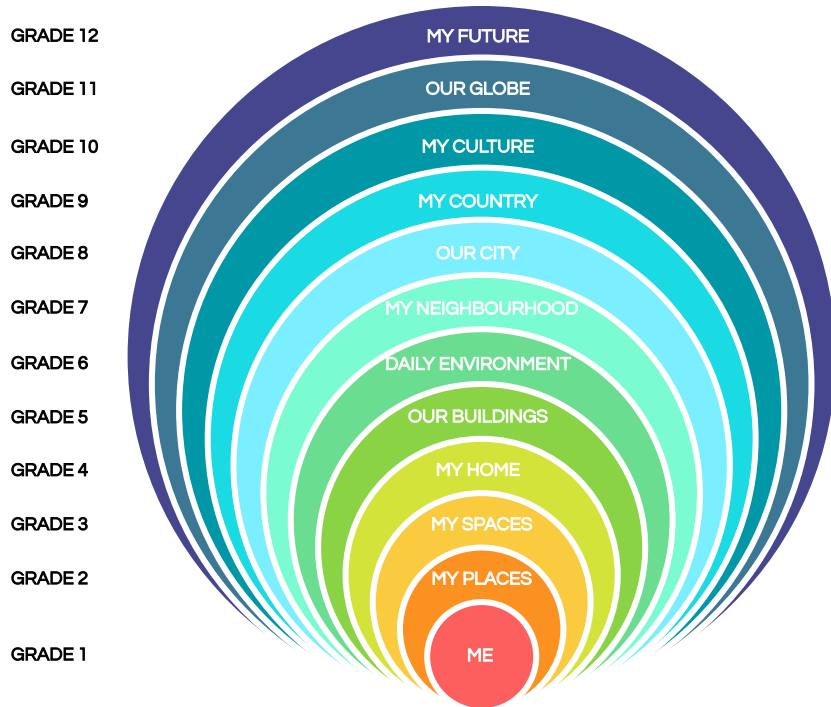
Integration and dialogue between subjects

The central aims of the new curriculum, are to develop the school culture and to promote instruction with an integrative approach. The aim is that pupils will

- understand the relationship and interdependencies between different learning contents
- be able to combine the knowledge and skills provided by different subjects to form meaningful wholes
- be able to adopt and use these in collaborative learning

The core curriculum describes seven transversal competence areas. These epitomise the aims of education and reflect the competences needed in all spheres of life. Competence is constructed of knowledge, skills, values and will.

“CREATIVE CLASSROOM” – PHENOMENAL LEARNING FOR SCHOOLS



- Education contents for different grades
- Each grade level takes a different perspective to the topic at hand
- Applies the knowledge of a variety of topics in a multidisciplinary manner
- Target-oriented education in creativity

Active Learning, example of testing structures





Active Citizenship & Participation Programs



Collaboration with City Planning Departments in Finland



WHAT IF WE LISTEN TO CHILDREN WHEN PLANNING OUR BUILT ENVIRONMENT?

20+ years of Social Innovation and participation projects with children

Dream House Workshop
21.4.2013, Laituri



Esikaupunki, Maunula Workshop 2011



Hernesaari project, 2008



Kuninkaantammi landscape competition
where children are judges



My Dream
Playground, 2008



Guggenheim Museum to
Helsinki exhibition at
Laituri, 2012

HERNESAARI LOCAL MASTER PLAN IN HELSINKI BY ARKKI'S PUPILS

– Helsinki City Planning Office involving children



15-18 YEAR OLDS WORKING ON THE FINAL SUGGESTION



PHOTO OF THE CHILDREN'S MODEL OF THE AREA

CHILDREN'S PARTICIPATORY PLANNING PROJECT WITH THE THAI PARLIAMENT 2019-2020

Students at Yothin Burana school redesigning Bang Pho Pier, which was sunk and needed renovation.

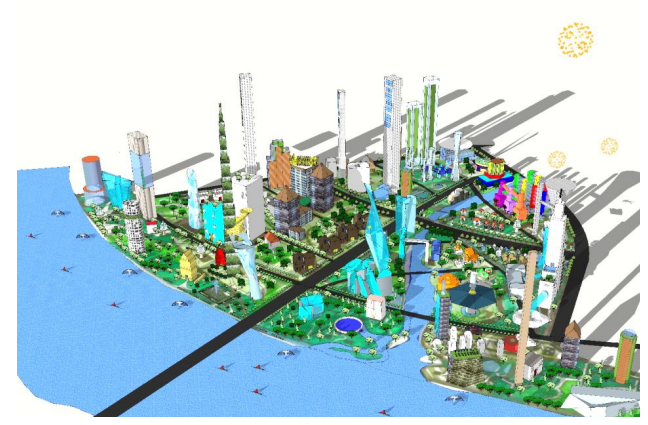


Arkki programs give children new capacities, means and mediums to influence the creation of our future environment in a positive way, no matter what their occupation will be.



Children Innovate a Smart and Child-Friendly City

URBAN PLANNING - THU THIEM NEW URBAN AREA, HO CHI MINH CITY, VIETNAM



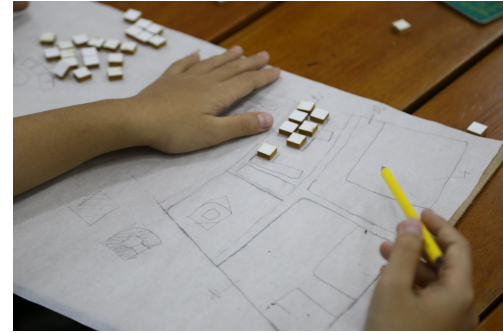
Vietnam:
Thu Thiem – the new urban area of
Ho Chi Minh City, Vietnam



HCMC DEPARTMENT
OF PLANNING &
ARCHITECTURE

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Shanghai

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Arkki's project in Vietnam
was winner of
UNICEF CFCI AWARD
2019
in the category of Meaningful
Child Participation



Child
Friendly
Cities
Initiative

unicef 
for every child

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The Aim of Arkki is to enable Children to become Innovative influencers of the future



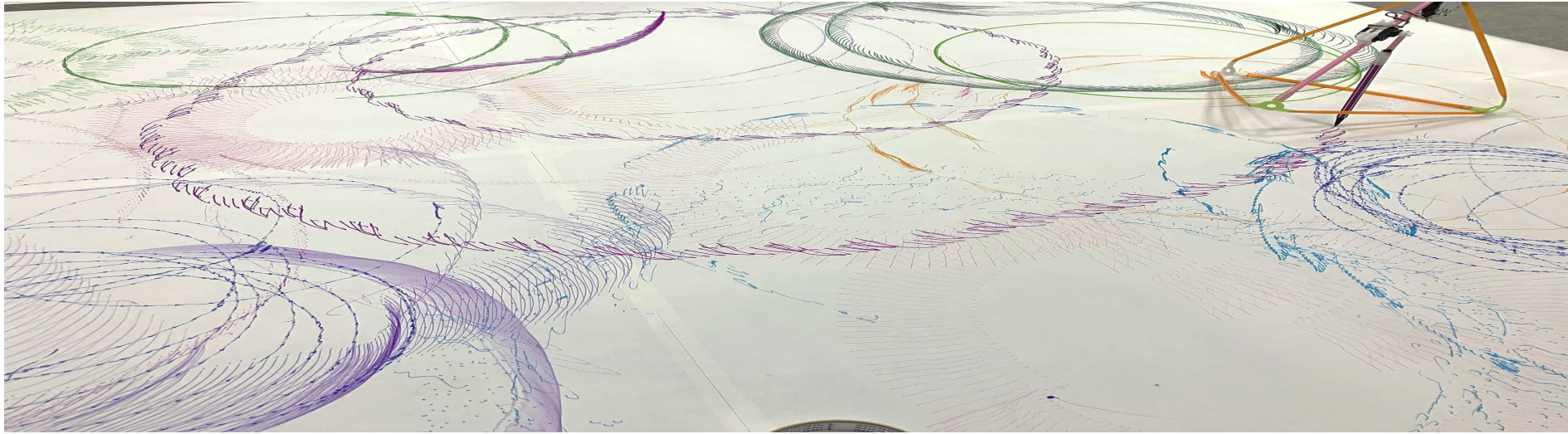


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Strawbees[®]
THE FUTURE OF LEARNING



ARTBOTS & ARCHITECTURE

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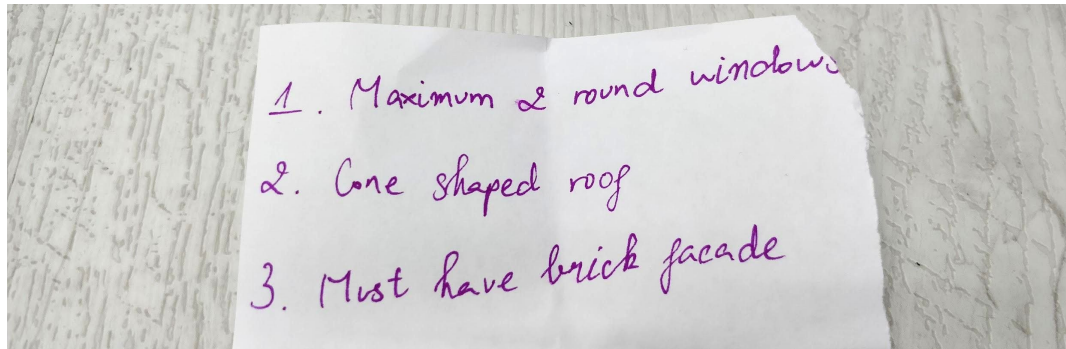
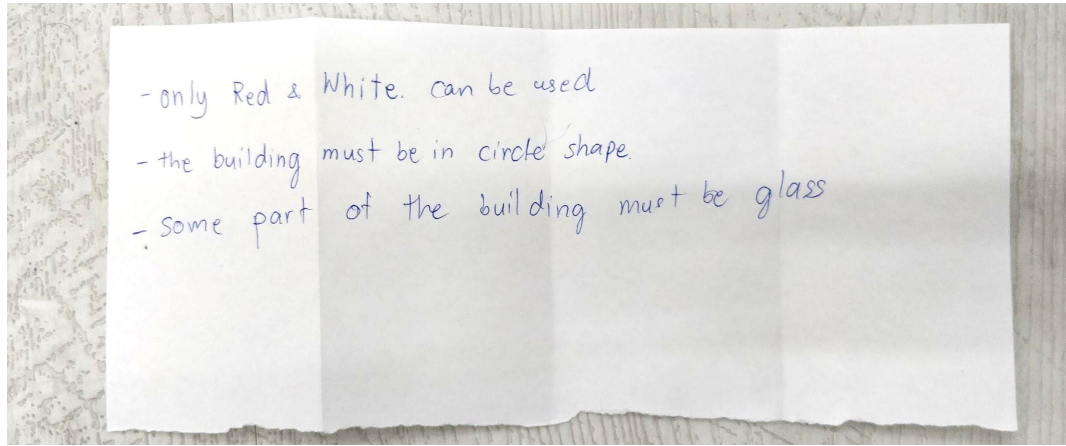
ArkkiBotics: Computational Thinking course for kids



Computational Thinking: Patterns

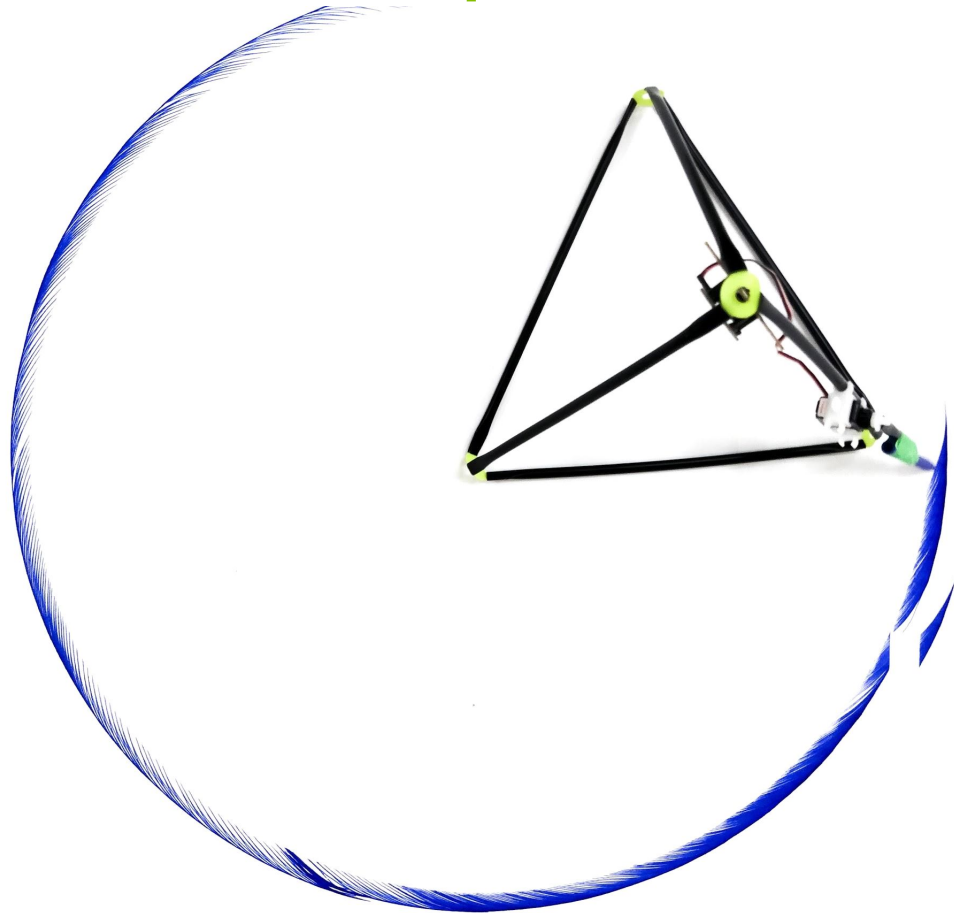


Computational Thinking: Patterns

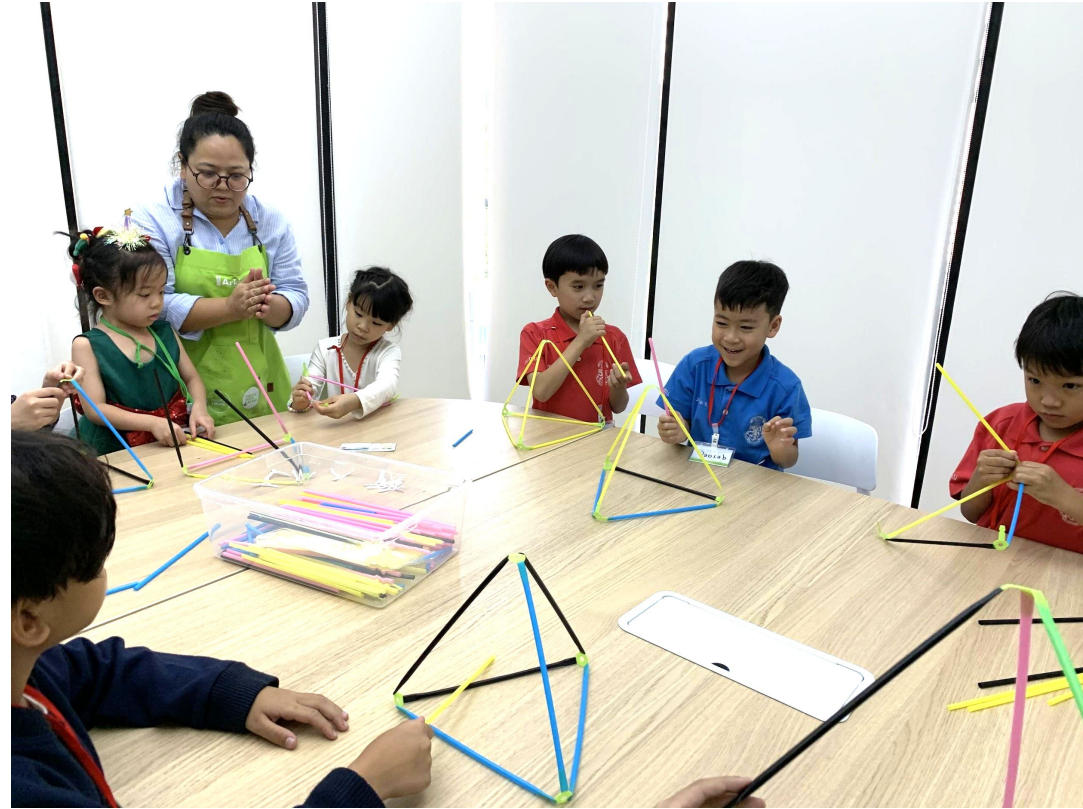


In this game called “Building Regulations”, the pupils observe patterns, trends and regularities in the built environment. They analyze the patterns found in the built environment and learn to read the environment in a new way. The pupils practise the concept of pattern that is important in coding: Pattern recognition means being able to spot what is similar and what is not.

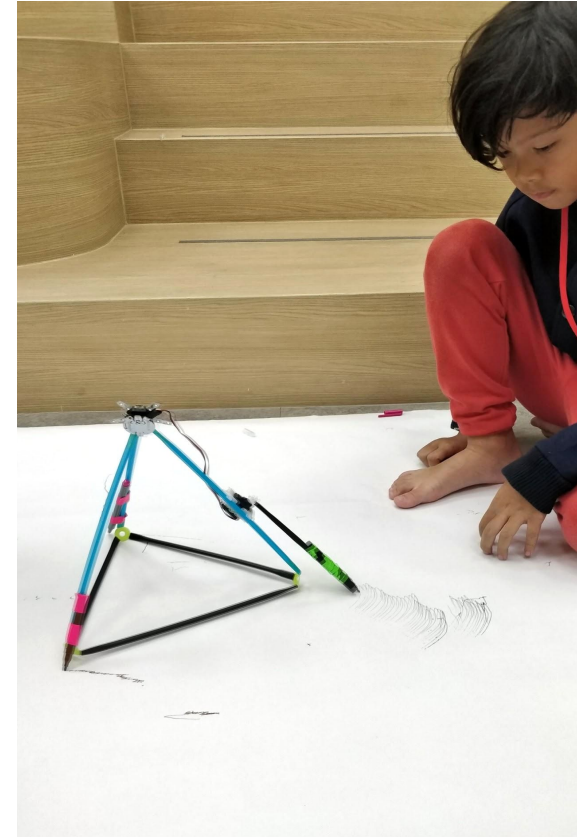
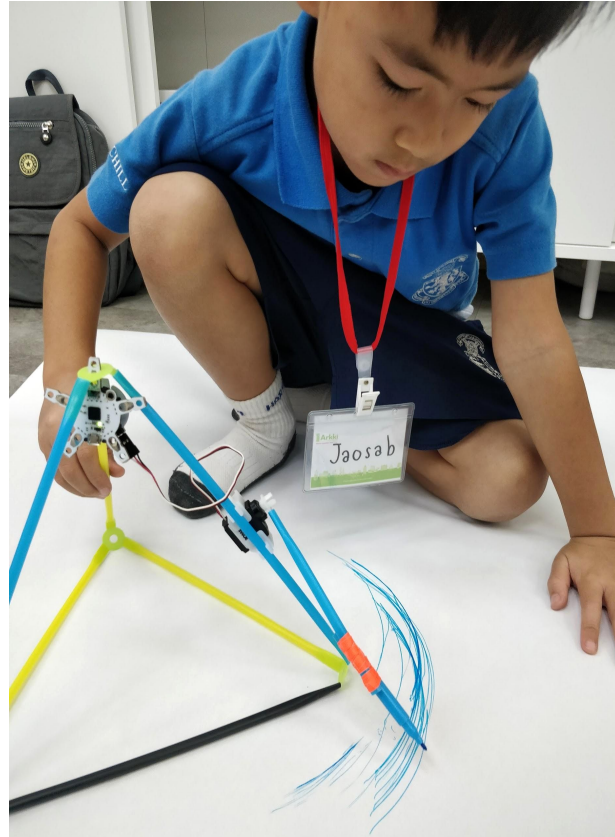
DRAWING ROBOT: Computational Thinking/Variable



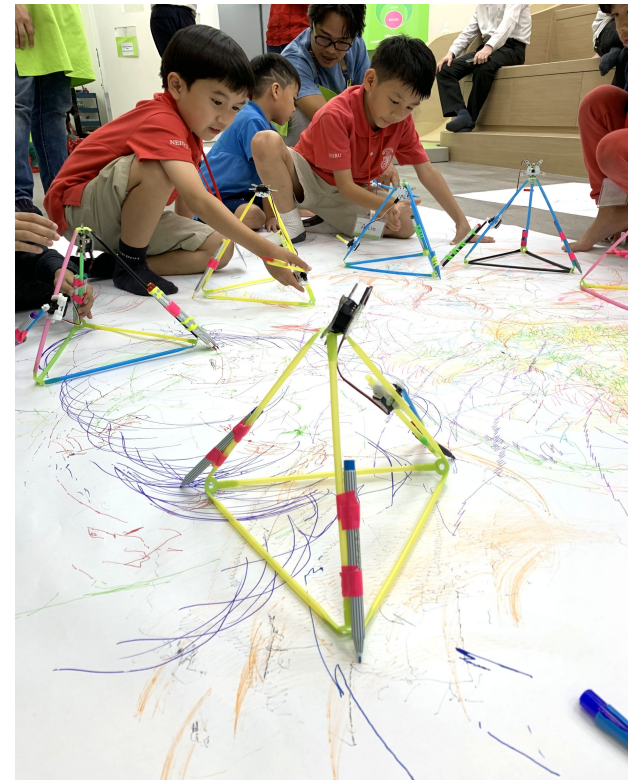
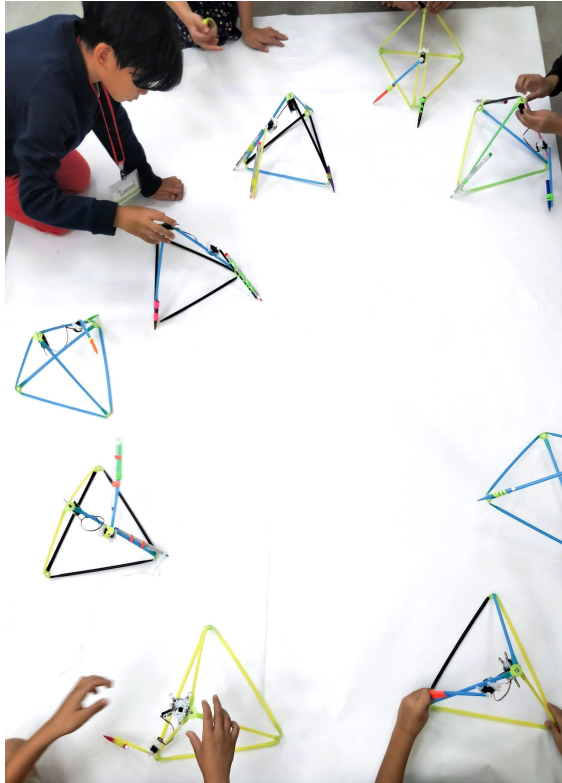
DRAWING ROBOT: Computational Thinking/Variable



Computational Thinking: Variable

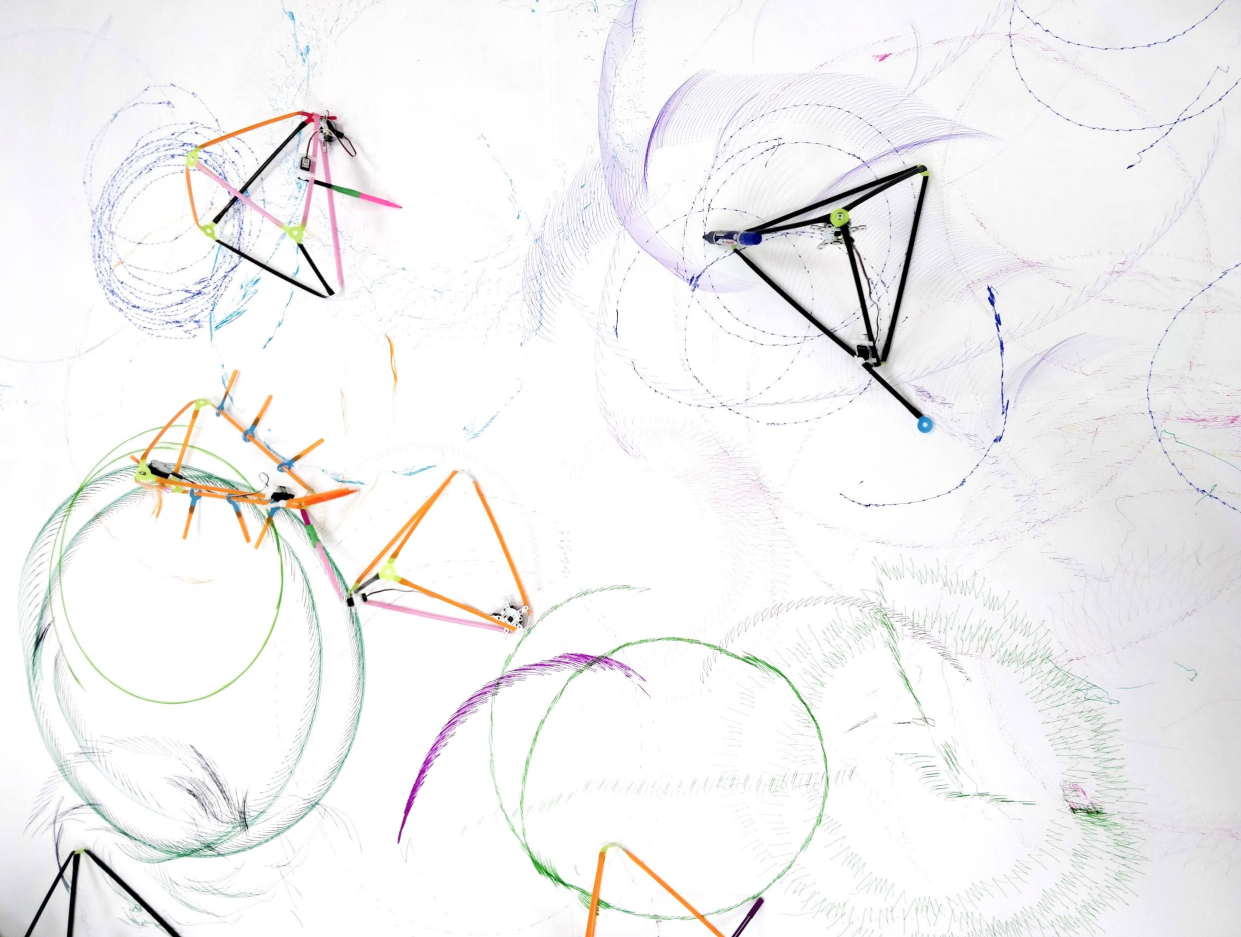


Computational Thinking: Variable



In the Drawing Robot project, the pupils get familiar with the concept "variable" in coding by testing different variables themselves and observing the impacts.

Pupils explore and experiment with coding movement by changing parameters and at the end of the project, they visualize the robot's movement in an interesting way.



CODING THE DRAWING ROBOT - Flow coded robot

The screenshot shows the Strawbees coding environment. The top navigation bar includes the Strawbees logo, a 'CODE' button, a 'FILE' dropdown, a 'TUTORIALS' dropdown, a project title 'Drawing robot', an 'Autosaved' indicator, and an 'Upload' button. On the left, a sidebar contains a 'SIMPLE' / 'ADVANCED' toggle and two main categories: 'INPUT' (with 'Circuit Touch' and 'Light Sensor' blocks) and 'BRAINS' (with 'Wave', 'Randomizer' blocks). Below these are 'OUTPUT' blocks: 'LED' and 'Servo Motor'. The main workspace features a green 'Wave' block with the following settings: 'length (s)' set to 1.49, 'type' set to 'Sine', 'min' set to 0, 'max' set to 1, and 'offset' set to 0. An 'outlet' port on the right side of the Wave block is connected via a dashed arrow to a yellow port on a pink 'Servo Motor' block. The Servo Motor block is configured with 'servoMotor1' as the ID, 'position' as the signal type, and 'place' set to '1 Servo 1'.

CODING THE DRAWING ROBOT - Block coded robot

Strawbees. CODE FILE TUTORIALS Random drawing robot Autosaved Upload

Input

- horn is touched
- value of circuit touch horn
- value of light sensor horn

Output

- set servo 1 position to 1
- transition servo 1 position to 1 over
- set continuous servo 1 speed to 1
- set continuous servo 1 direction to clockwise
- set led left eye light to 1
- set dual color led horn light to 1
- set dual color led horn color to 1
- tap key SPACE

when program starts

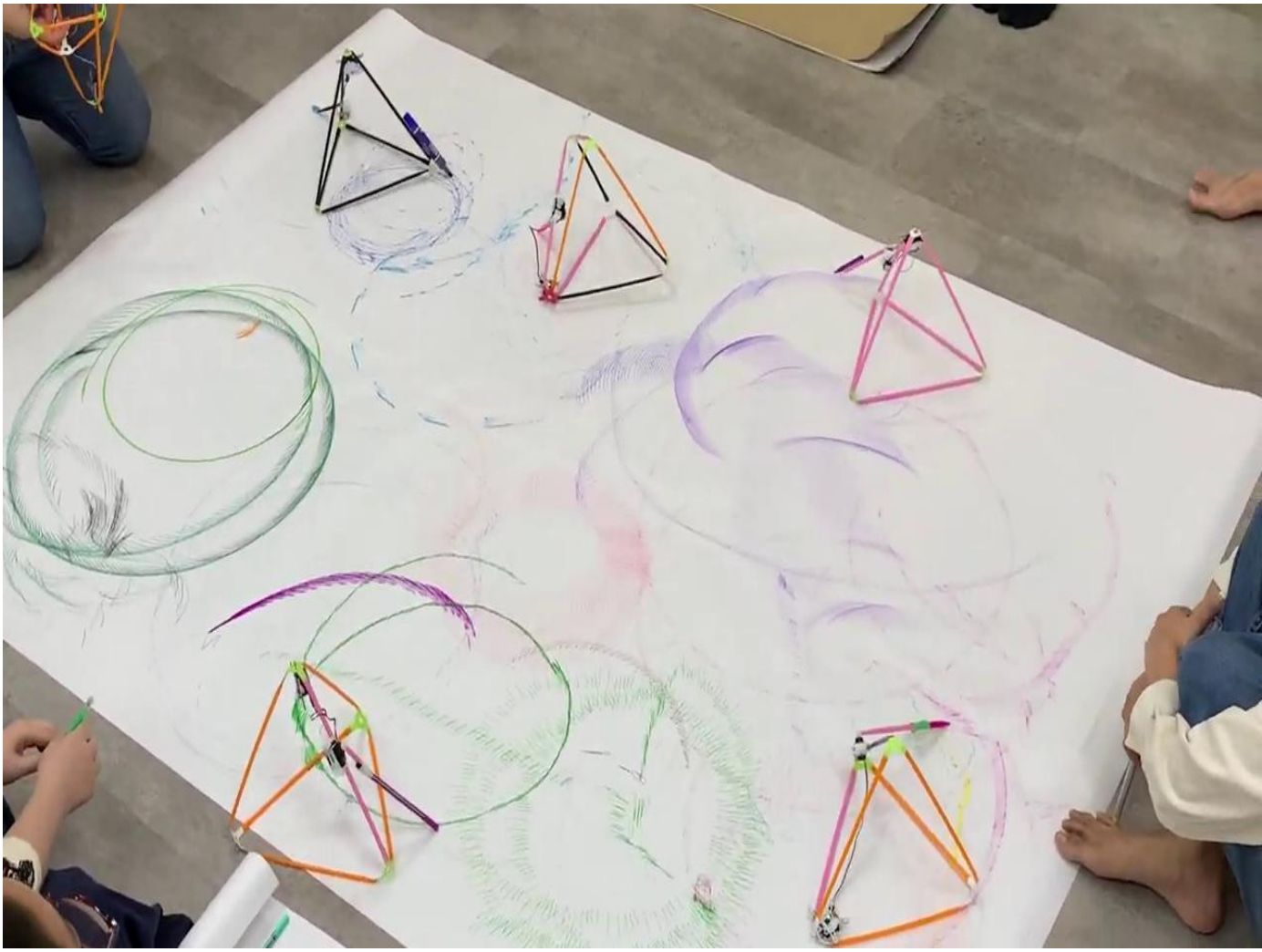
wait until horn is touched

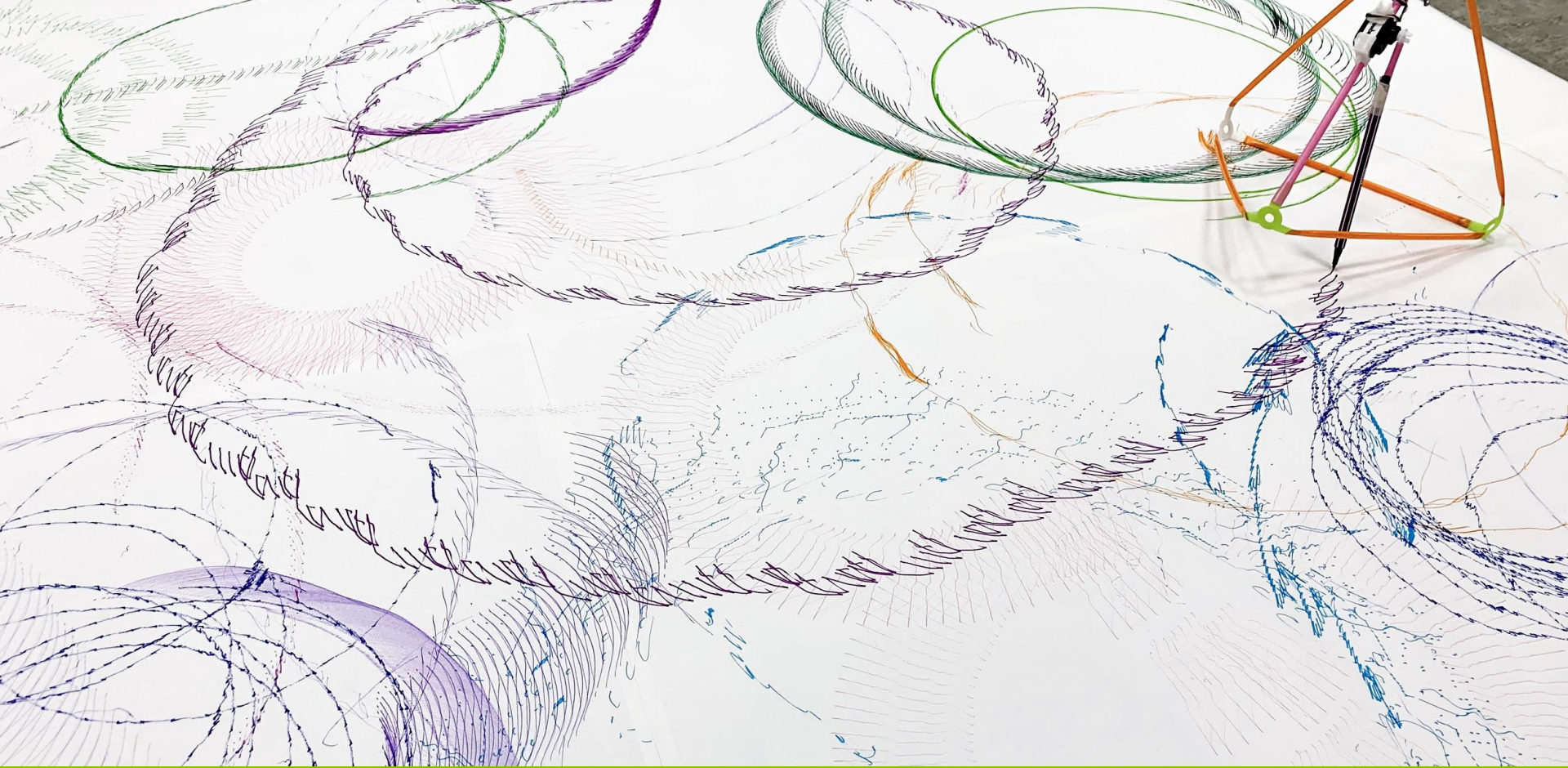
forever

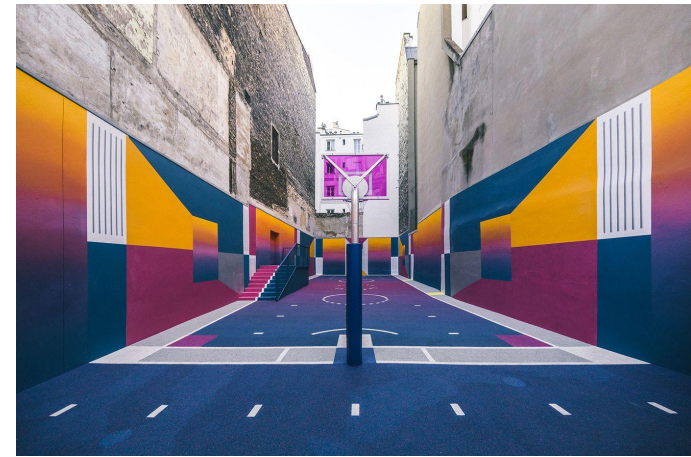
if horn is touched then

repeat 20

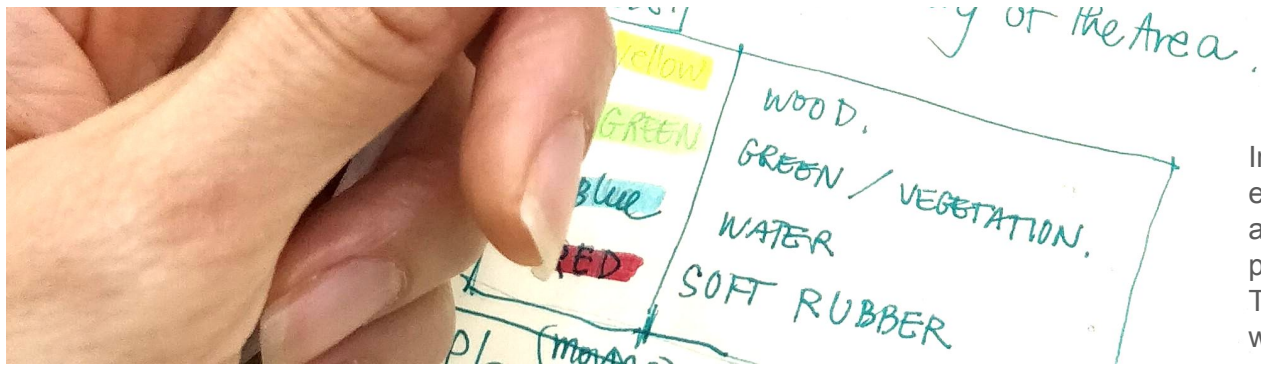
- set servo 1 position to pick random 0 to 1
- wait pick random 0.6 to 1.2 seconds
- set servo 1 position to pick random 0 to 1
- wait pick random 0.6 to 1.2 seconds







Example pictures from the inspiring lecture: shapes, materials, colors, textures, natural and built elements;



In the Playground Map project the pupils experiment, participate, collaborate, and create an interesting plan for a future “ArkkiBotic” playground.

This project is based on the previous group work made by the drawing robots.





PLAYGROUND MAP

Communication

Collaboration

Working together

Negotiating

Discussing

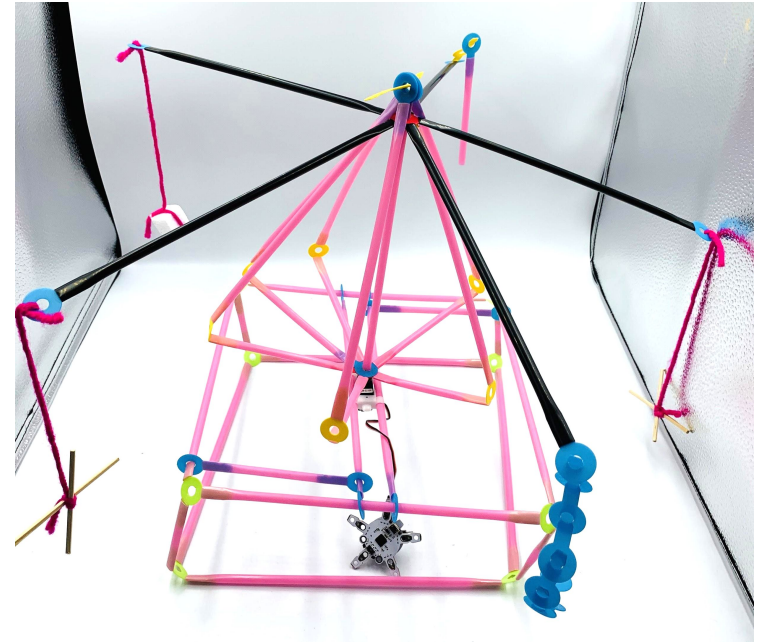
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Playground Ride: Loop, Variable, and Algorithm



In the Playground Ride project the pupils design and create their future imagination playground on their playground map..

The pupils innovate, design and create machines, rides, and structures for a robot playground.

They practise the concepts of LOOP, VARIABLES AND ALGORITHM.

CODING THE PLAYGROUND RIDE - Servo motor & continuous servo

Strawbees CODE FILE TUTORIALS Playground machine Autosaved Upload

SIMPLE ADVANCED

INPUT

- Circuit Touch
- Light Sensor
- Squeeze Sensor
- IR Proximity
- Sonar
- Analog Sensor

BRAINS

- Wave
- Randomizer
- Time
- Math
- Comparison
- Logic
- Statistics
- Constrain

The image shows two Scratch code blocks connected to servo motors. The top block is a green 'Wave' block with the following settings: length (s) 1.49, type Sine, min 0.2, max 0.65, offset 0. Its 'outlet' is connected to the 'position' of a pink 'Servo Motor' block (servoMotor1) at 'place 1 Servo 1'. The bottom block is a green 'Randomizer' block with the following settings: interval (s) 4, min 0, max 1. Its 'outlet' is connected to the 'direction' of a pink 'Continuous Servo' block (continuousServo1) at 'place 2 Servo 2'. The 'speed' of the continuous servo is set to 0.5.

Playground Rides: Loop, Variable, and Algorithm





THANK YOU!

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Arkki Websites and social media handles

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www.earkki.arkki.com

Creative Classroom

<https://www.creativeclassroom.fi/>

Arkki International

Youtube https://www.youtube.com/channel/UCm1PsdZRhgKClmsP9Me_PKw

Facebook: <https://www.facebook.com/ArkkiInternational>

Instagram: <https://www.instagram.com/arkkiinternational/>

Twitter: https://twitter.com/arkki_int

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Youtube: <https://www.youtube.com/channel/UCaTozol9tfJC3zFifJYLtQ>

Facebook: <https://www.facebook.com/arkkiFinland/>

Instagram: <https://www.instagram.com/arkkiFinland>

Arkki Vietnam

Facebook <https://www.facebook.com/vietnamarkki/>

Instagram <https://www.instagram.com/arkkivietnam/?hl=en>

Youtube https://www.youtube.com/channel/UC61fy72UvrAh45f5ADocd_w

Arkki Thailand

Facebook: <https://www.facebook.com/arkkiThailand/>

Instagram <https://www.instagram.com/arkkiThailand/?hl=enArkki>

Youtube <https://www.youtube.com/channel/UCdvkmaZsxPWV4oOOqCeOBbQArkki>

Arkki Greece

<https://www.facebook.com/arkki.gr/A>