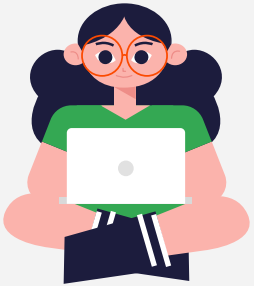
ThinkAbility

Advanced Math Learning for Kindergarteners

Start!



ThinkAbility

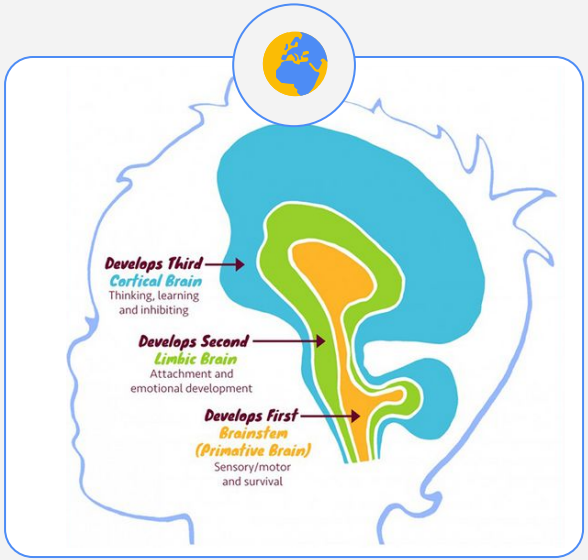
- **1. Product Background**
  How the product starts and what needs it aims to address
- **2. Curriculum Design**
  Modular learning with unique learning objectives
- **3. Course Features**
  A learner-oriented curriculum designed for kindergarteners
- **4. Pedagogy**
  Advance motivation and engagement with feedback and evaluation

1. Product Background

- Early Math Learning for Talented Students
- Math Education in the United States
- Young Children’s Online Learning in the Post-Covid Era

1. Product Background

Early Math Learning for Talented Students



Children's brain develop from the bottom up.

Children aging 4-6 undergo a critical stage for their brain development. From infancy to their preschool years, children have gradually developed sensory processing, motor skills, emotional regulation, etc.; by the time for kindergarten, children start to develop their thinking ability.

In particular, during this period, children start to develop basic abstract ideas, sensitive to exposure to logical reasoning and spatial cognition. Therefore, age 4-6 comes the critical years for children to build core functioning for future math learning.

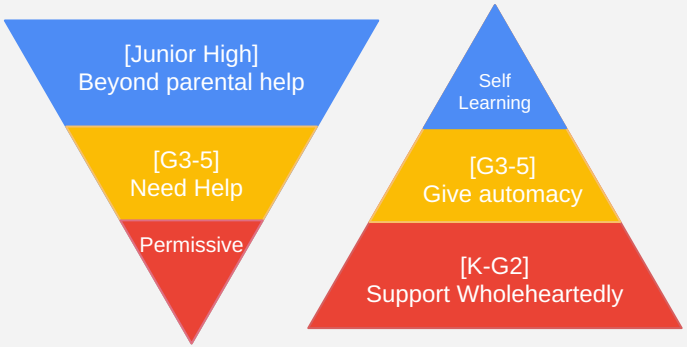
1. Product Background

Math Education in the United States

In the United States, there is a jaw-dropping gap in mathematical learning starting as early as Kindergarten. While most kindergarten children are still learning counting within 10, some STEM/track-based private schools are introducing addition/subtraction within 100.

On the other hand, the mathematical education under the guidance of common core is set up so that the transition from elementary school to middle school is destined to be a rough one, with many students unable to follow through with the drastically increasing difficulty.

Therefore, early math exposure, especially for talented children will lay a foundation for their future advancement.



Comparison of Different Adult/Parental Role & Styles in Academic Learning Context

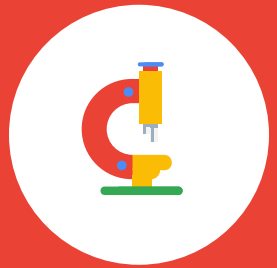
1. Product Background

~~Young~~ Children's Online Learning in the Post-Covid Era

E-learning has been a heated topic for discussion in the realm of post-secondary education for years. On the other hand, it has not been a popular choice for younger age groups, especially those in the early years of elementary school.

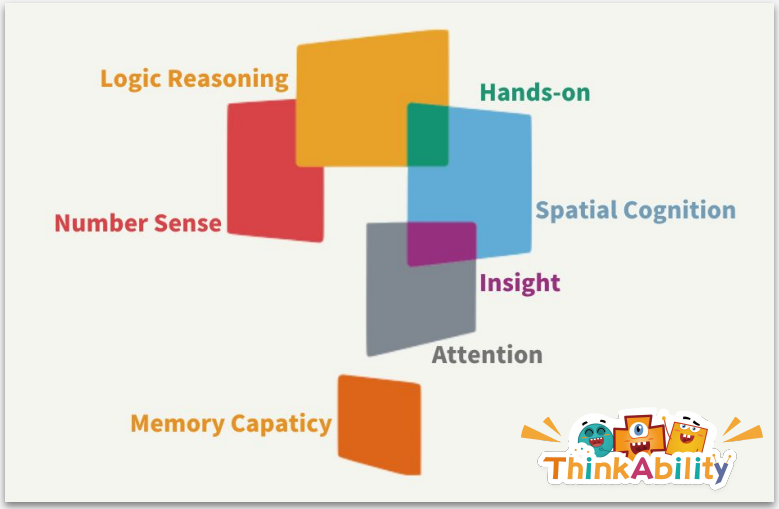
However, the coronavirus pandemic has forced students and educators across all levels of education to rapidly adapt to online learning. The impact of this — and the developments required to make it work — could permanently change how education is delivered.

A curriculum that is suitable for online learning at younger age is in need.



Modular Learning

Introduction



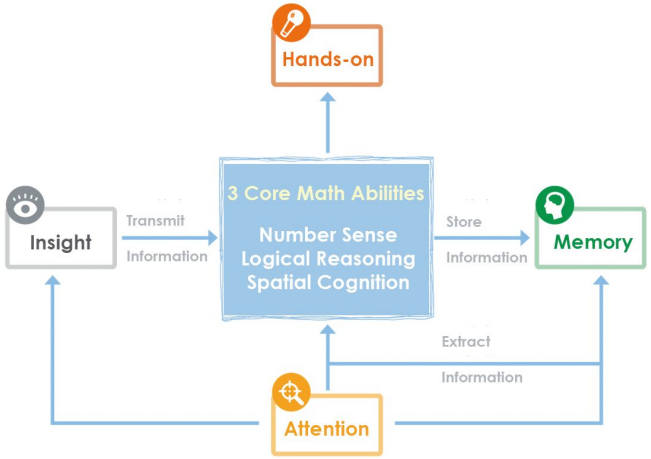
Inspire 7 abilities in mathematical thinking

- Guide children to learn how to think
- Cultivate the ability to learn
- Nurture lifelong active learners

Modular Learning

The curriculum dissects the process of thinking and abstracts seven core abilities required during the processes.

It includes 4 core abilities that supports universally the process of learning: **attention** (the ability to stay focused), **insight** (the ability to acquire external stimuli in an efficient manner), **memory** (the ability to process and store information), **hands-on** (the ability to coordinate cognitive processes with behavioral experiences). It also includes 3 math abilities that are critical to math learning: **number sense, logical reasoning**, and **spatial cognition**.



product modules

Year-round Curriculum

Fall

Basic abilities for all types of learning.
Foundation for math in PreK - 2

Attention | Insight | Memory | Hands-on

Sep	Oct	Nov	Dec
Attention Span	Observe in Order	Relation	Experimentation
Broad and Details	Wholes and Parts	Imagination	Magic Cup
Focus!	Shape Patterns	Categorization	3D World
Selective Attention	Rotation		

Spring

Enhance core abilities for math learning.
Foster interest and efficacy in Math.

Number Sense | Logical Reasoning | Spatial Cognition

Jan - Feb	March	Apr - May
Making 10	Elimination	Place and Direction
Add and Subtract	Count In Order	2D Shapes
More or Fewer	Strategy Games	Cutting and Splitting
Equal and Balanced	Number Puzzle	Viewing Objects
Count in Lines		3D Puzzles
About Time		

ThinkAbility

3. Course Features

Learner-Oriented

Bridge to Abstract

Use Evidence in **Learning Science** to **bridge** abstract math concepts to concrete **learning experiences**

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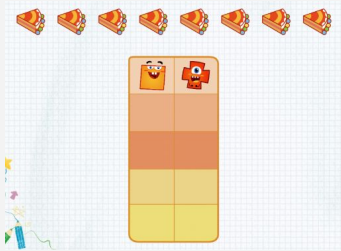
Bridge to Abstract

Visual, Manipulatives, Gestures

Learning science and cognitive psychology has long showed the effect of visual engagement, gestural delivery, and hands-on experience in knowledge acquisition. ThinkAbility course

- incorporates **learning manipulatives** to help children grasp the abstract concepts
- uses **visual cues** to facilitate learning and encourage children's visual engagement with numbers
- Requires instructors to actively use **gestures**, **teaching tools** and **interactive games** to engage learners.



Engage Parents In

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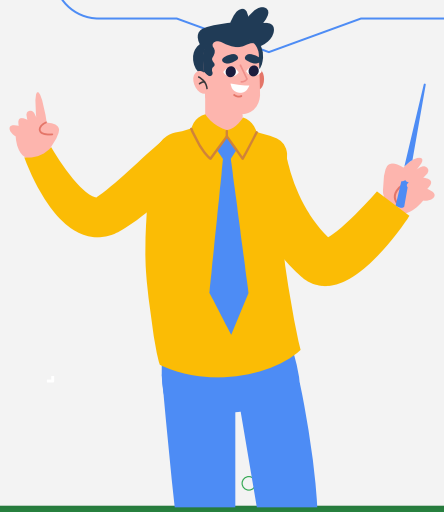
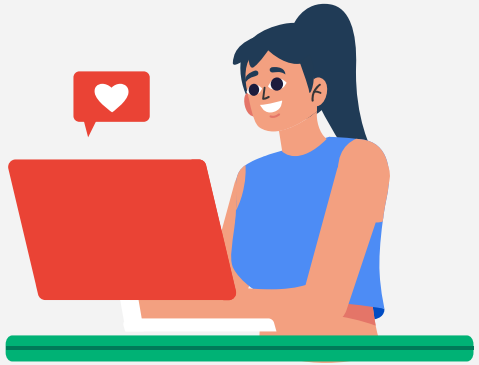
As a teacher, I want to work with parents to help children better learn.



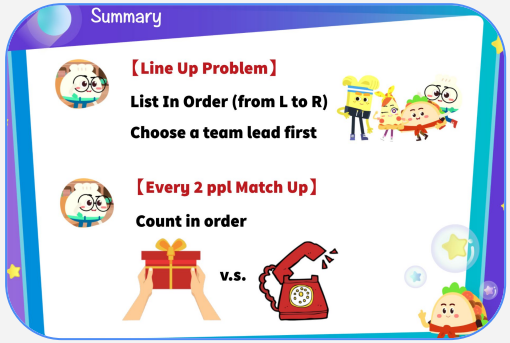


As a parent, I want to know how my child is performing during the class.

Engage Parents In

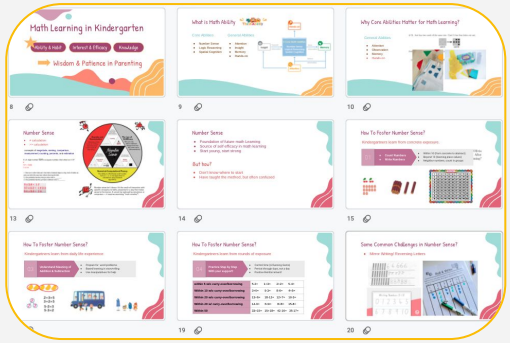
Course Info

provide detailed **lesson summary** (visual mind map, caveat notes) to both children and parents for an honest reflection of the learning outcome. Provide **additional practice** that suits the child's mastery level.



Varied Resources

provide **monthly webinar, info session, parent-meeting, and 1v1 scheduled appointments** for parents to communicate parenting knowledge, why and how to help children better learn math, individualized discussion about how to support the child to thrive.



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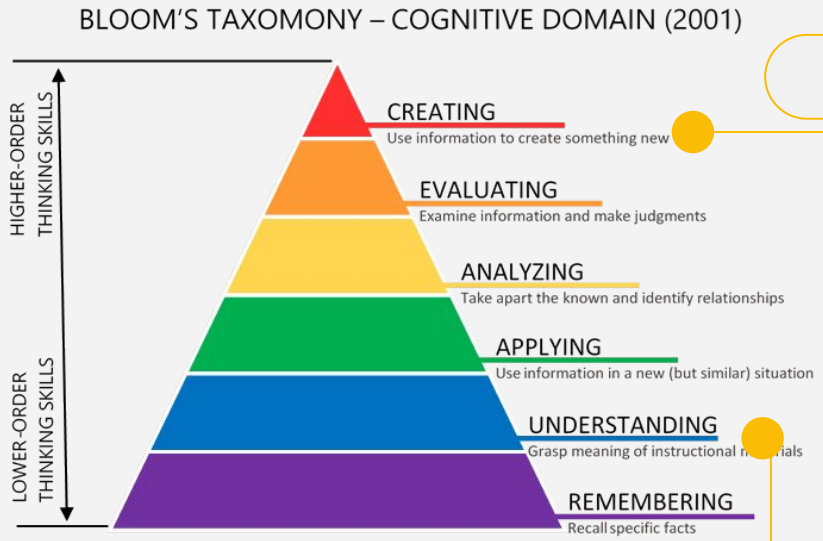
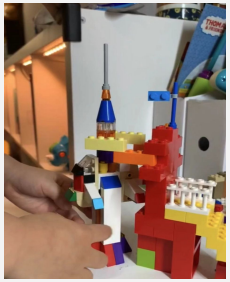
Learning Beyond Classroom



Build and Create

Apply knowledge to problem solving, e.g.

- Concept of symmetry to paper cutting
- Solid shapes to 3D creations
- Process of elimination to Sudoku Challenge



Learning by Teaching

After every class, invite the student to be the "little professor" in explaining how to solve a new question to parents and teachers

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Learning-Oriented

Pedagogy

Motivation

Token, Gamified, Life-Related.

Engagement

Spotlight, Showcase, Raise hands

Feedback

Personalized Attention and Report

Evaluation

Iteration of Curriculum and Instructional Design

Motivation

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Token Economy

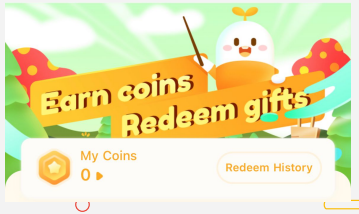
- Rewarding points to provide positive encouragement
- Token exchange for prizes

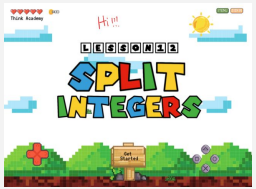
Gamified

- Gamified lesson design with storyline, mission, and levels.
- fun-themed course materials

Life-Related

- animations that ties back to math problems in life
- problem-solving in life

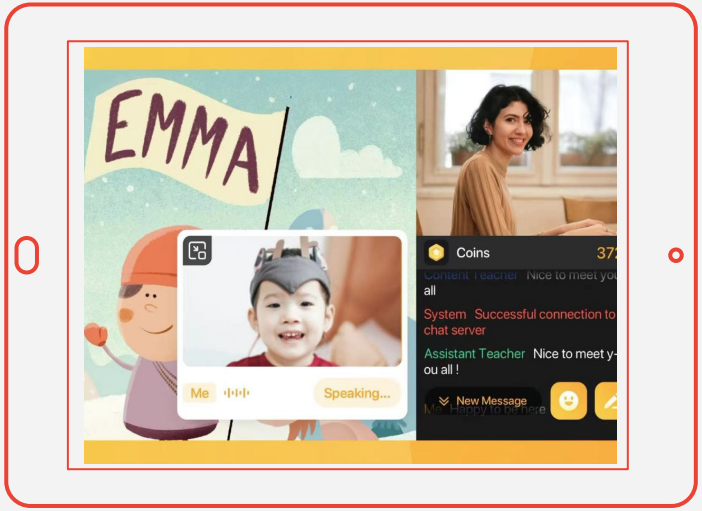




Engagement

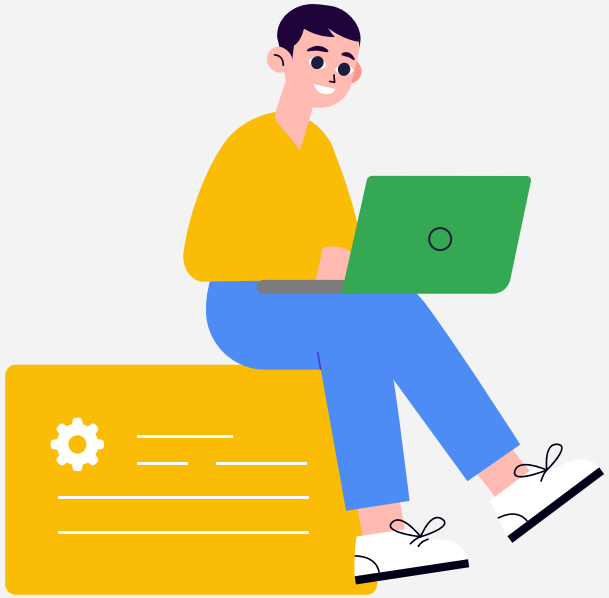
Functions on the interactive platforms that encourage lesson engagement.

- Spotlight a student to share ideas
- Showcase a submitted homework
- Raise hands to join discussion



Feedback

- Per semester, provides modular reports
- Review sessions and formative assessment
- Per lesson, provides parent with report on lesson completion rate, submission rate/interaction level.



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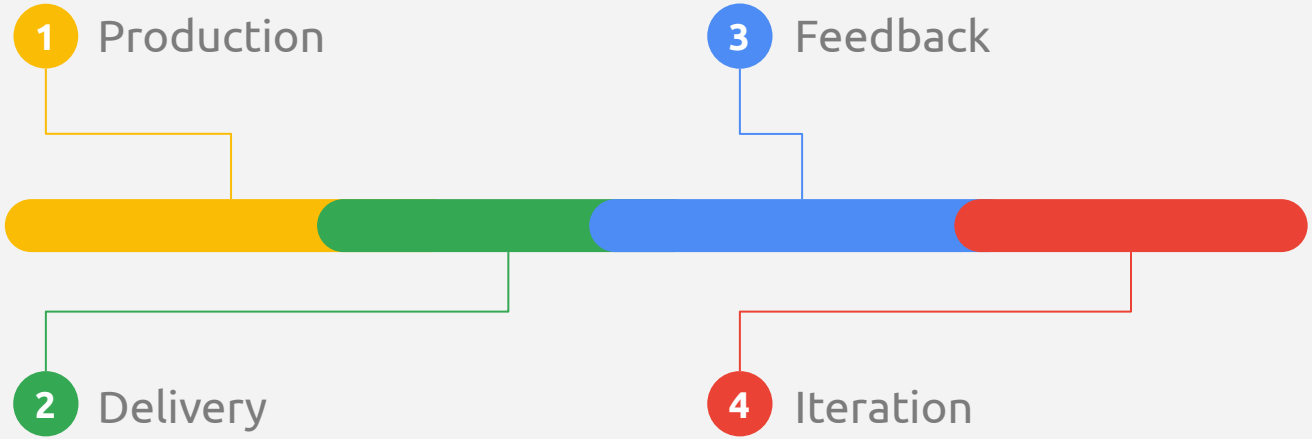
Evaluation

Collect feedback from students, parents, and instructors for iterating on curriculum and instructional design.



Thanks

Do you have any questions?

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