FUNEXPECTED

Funexpected Math way of learning

Changing the way students experience mathematical concepts.

HSE University

Berkeley UNIVERSITY OF CALIFORNIA

UCL Institute of Education

ABOUT THE APP

Stunning design

We design a beautiful math world that compels exploration, supports children's affinity to experiment, values mistakes and adapts to individual learning paces.

THE WEBBY AWARD
Best Visual Design

KIDSCREEN AWARD
Best Educational Application

EDTECH BREAKTHROUGH
Best Math Learning Solution

HORIZON INTERACTIVE AWARDS
Gold Winner

THE EDUCATE EVIDENCE AWARE EDWARD
Winner

BEST MOBILE APP AWARDS
Platinum winner

MOM'S CHOICE AWARD
Gold Winner

GAMES FOR CHANGE
Best Learning Game Nominee

Scientifically driven

We collaborate with scientists and educators from the world's top universities to fill our game setting with advanced math content and make college math culture available for all.

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Institute of Education

HSE University

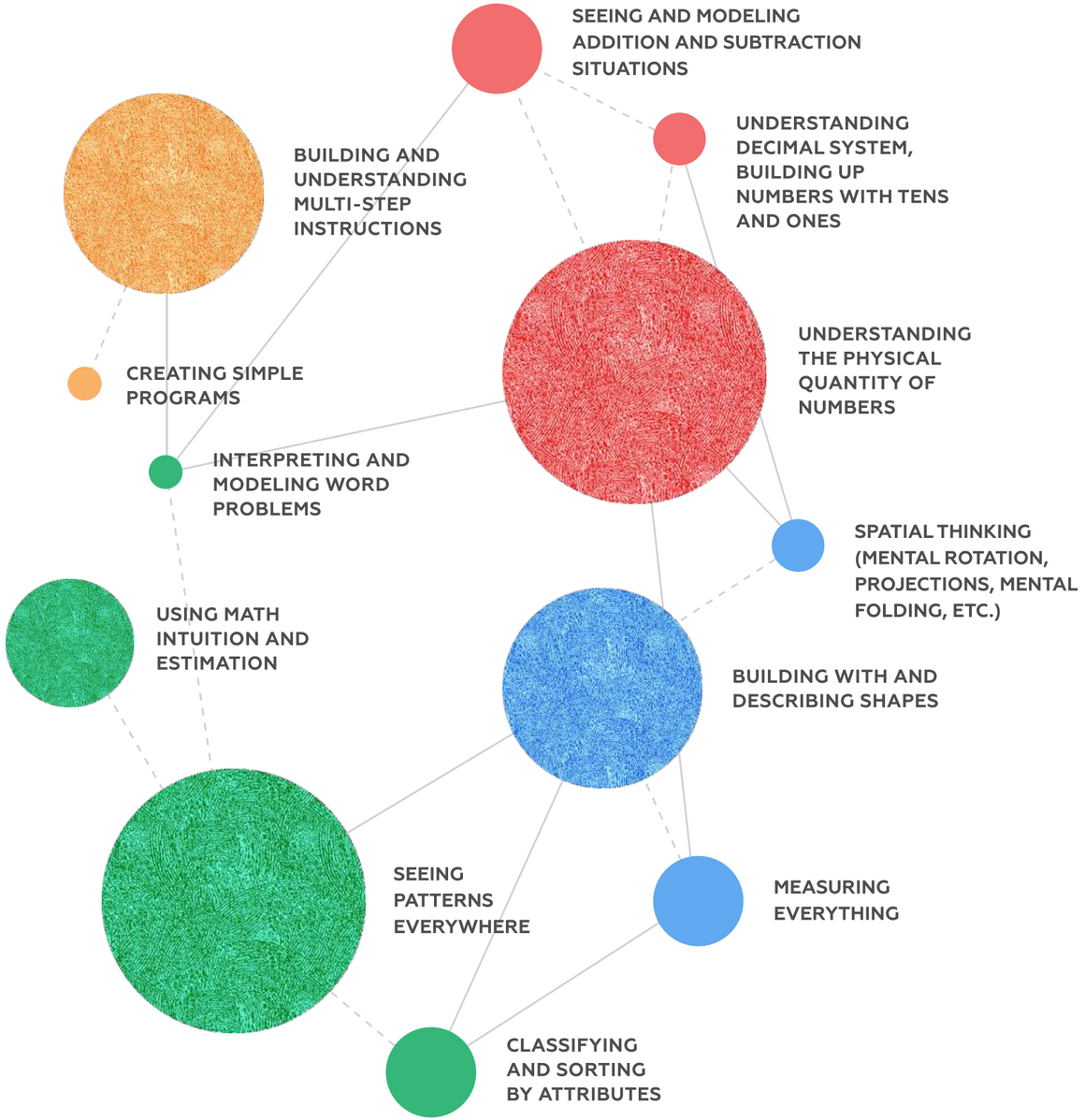
Contents

Wide curriculum: connecting ideas for a deeper understanding

Getting children aged 3-7 interested in math can be challenging. It takes a lot of time and effort to meet each child on their level, and to help them achieve math mastery without becoming bored by repetitive tasks.

Funexpected math makes learning fun and intuitive.
An engaging story poses problems that children actually want to tackle, a wide curriculum helps interconnect ideas, and low-floored, high-ceiling tasks allow kids to progress at their own pace.

Funexpected teaches math the same way that you would teach a kid a new language: immersing children in a certain environment, helping them express themselves and focusing on successes rather than mistakes.



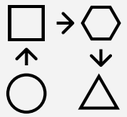
Teaching approach and formats

Every new concept starts with children playing and experimenting. Then, they move to summing up their experiences and trying to answer oral questions. Finally, it’s time for more tricky challenges.

Play and experiment

1 step

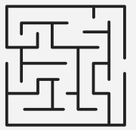
Students experiment with games to gain a hands-on understanding of new concepts. They can share observations with the class.



Oral questions

2 step

Using their freshly-acquired experience, children tackle oral questions to deepen their understanding. This is a good time to formally introduce new concepts and promote math talk.



Tricky tasks

3 step

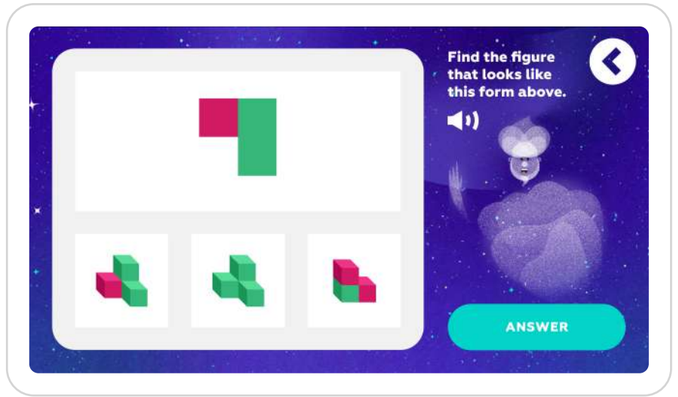
The class is presented with a tricky question in which the same themes can be presented in new settings. The digital tutor helps children find the solution.

Example: 3D shapes and projections

THEME Learning about 3D shapes and projections.

AR game

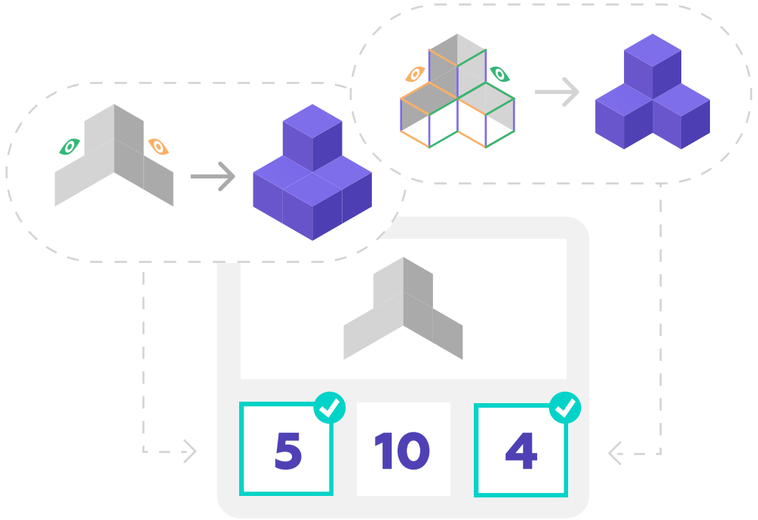
Exploring how various 3D figures look in AR mode, children experiment and come to conclusions of their own. They will discover that a sphere and a cone might look the same in some situations, or how to recognize a more complex figure by its projections.



Oral questions

Oral questions help children to sum up and share their observations. Here, it’s a great place to ask them about their reasoning for choosing the answers they arrive at.

Task: Find the figure that looks like this from above.



Final challenge

At this point, children have the opportunity to apply their new knowledge in various situations, while also being encouraged to work in their proximal development zone.

Task: I built a shape from cubes and drew it from two different sides. How many cubes does this shape consist of? Choose all possible answers.

Differentiation and meeting students at their level

To encourage every student to realize their potential and feel capable of mastering math, every format includes low-floored, high-ceiling tasks that help children progress gradually as they gain a deep understanding of concepts and interconnecting ideas.

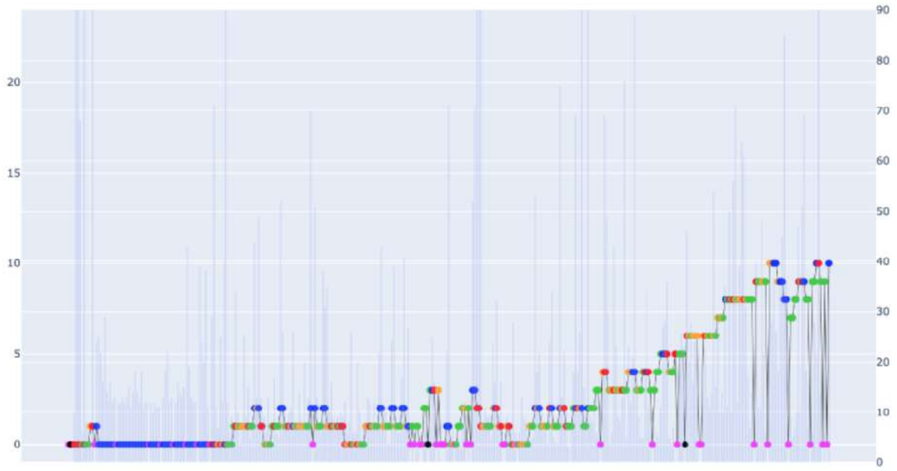
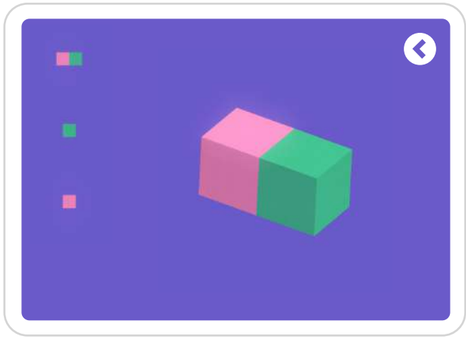
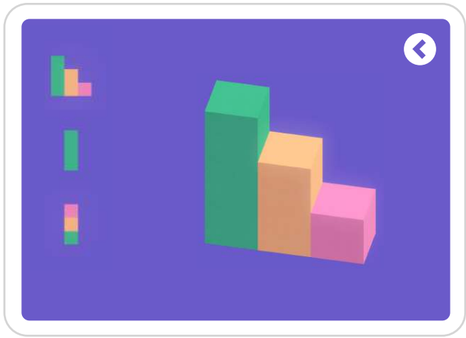


Fig. 1
Age: 5 years old.
Game: Monkey. Number Sense.

This graph shows how the child progressed inside the game, gradually increasing the complexity level.



LEVEL	1
DIFFICULTY	low
AGE	3-4



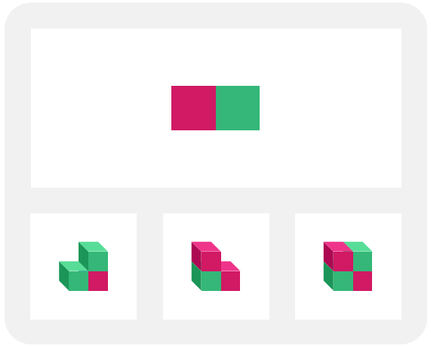
LEVEL	5
DIFFICULTY	medium
AGE	4-5

LEVEL	15
DIFFICULTY	high
AGE	5-7

Fig. 2
AR game. Various complexity levels.

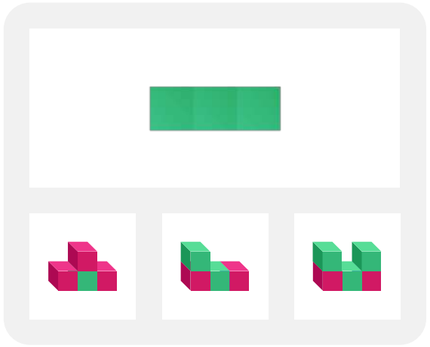
Each task has several levels of difficulty

TASK Find all figures that look like this from the top.



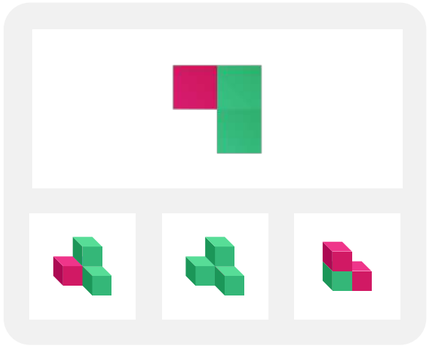
LEVEL 1

DIFFICULTY low



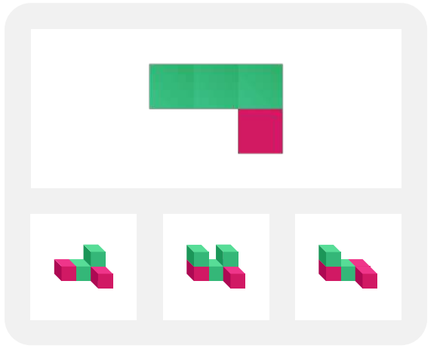
LEVEL 2

DIFFICULTY low



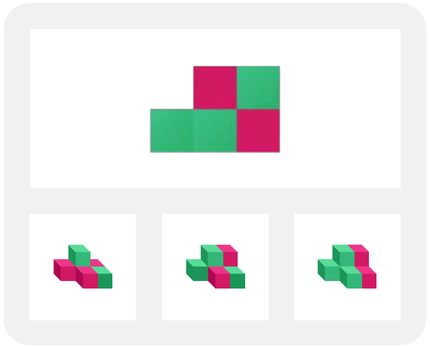
LEVEL 3

DIFFICULTY medium



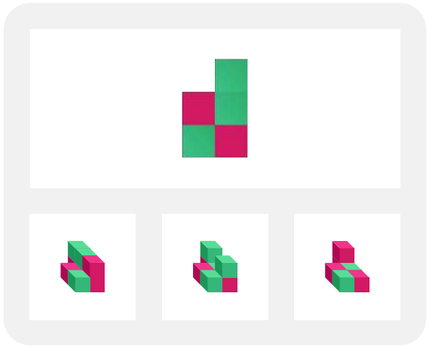
LEVEL 4

DIFFICULTY medium



LEVEL 5

DIFFICULTY high



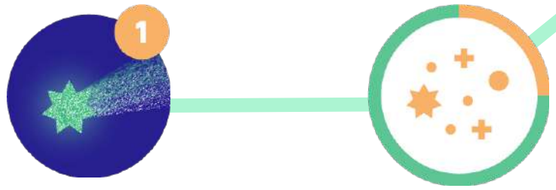
LEVEL 6

DIFFICULTY high

Yearly program

Funexpected uses storytelling to introduce math problems that children want to tackle. The narratives create opportunities to not only explore various applications of mathematical concepts, but to interconnect math with world history and culture, and help every child find a perspective to which they relate.

MODULES	4
ASSESSMENTS	12 per module
DIPLOMA	at the end of the module

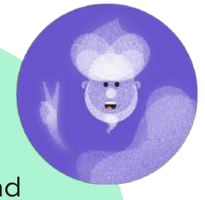


Learning Journey

Children embark on a journey learning about space, various countries and cultures, and meet many new characters within the app.

Magical Genie

A digital tutor and friend is always ready to help. He will ask oral questions, provide hints and show mathematical ideas.



Assessments

Embedded into the storyline, these help to adapt the complexity of tasks for every child.

Statistics

Detailed reports help find the math brilliance in every child and reveal shared weak points.

Curriculum

Number Sense

- Numbers and quantities
- Addition and subtraction
- Comparing numbers
- Number line
- Skip-counting
- Word problems
- Equations
- Subitizing
- Number patterns*
- Multiplication and division*
- Ratios*
- Fractions*
- Estimation*

Geometry

- 2D shapes
- 3D shapes
- Relative positions
- Composing and decomposing shapes
- Measurements
- Equal shapes
- Projections*
- Mental rotation*
- Mental folding*
- Symmetry*
- Geometrical patterns*

Logic

- Patterns
- Interpreting schemes and models
- Understanding complex instructions
- Formal logic*
- True and false statements*
- Sets and subsets*

Algorithms

- Simple programs
- Coordinates
- Tables
- Functions*
- Logical operators AND, OR, NOT*
- IF-ELSE constructions*

* — topics that complement the school curriculum.

Funexpected uses an interleaving approach and returns periodically to the same themes to deepen task complexity and compound development.