Planet Smart

Smart astute makes observations.

The Planet Smart contains 96 interactive activities that use project work, experimentation, experimentation and observation methods to introduce children to the fascinating world of the cosmos. Activities cover a variety of topics about the solar system, such as location, distances, orbits, and the structure of the planets. The tasks included in the package will wake you up children's curiosity about the world, teach them to make hypotheses, predict results, observe and draw conclusions. They develop the ability to think independently, raise competences in the areas of creativity and innovation. Thanks to working in teams, they develop communication skills, the ability to cooperate and solve problems.

Knowla

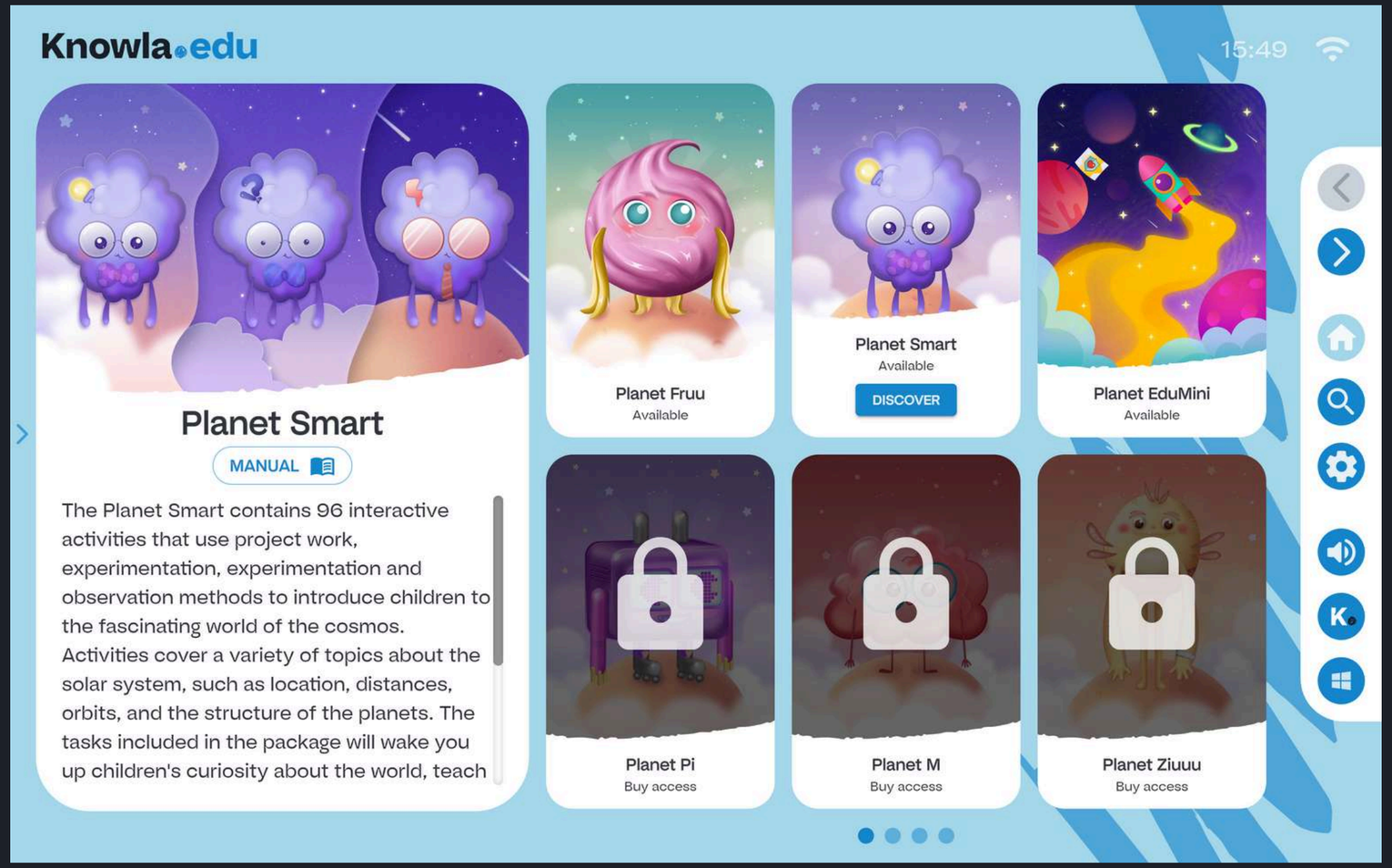
Knowla's apps are dedicated to children from the age of 3.

Planet Smart apps include difficulty levels:

- level 1: 5 - 7 years,
- level 2: 8 - 9 years,
- level 3: 10+ years

The age of use of the application is only suggested. Each activity and its level should be selected according to the student's skills and their special educational needs (both those leveling the level and developing talents).

Planet Smart in the Educational Universe



Knowla.

System buttons and menu view

Knowla.

Main menu - legend

back to all planets view

previous planets/apps/activities

next planets/applications/activities

go to application search

go to settings: language selection, license key activation, service settings

sound on/off (turning off the sound at the planet/application selection level will turn off the sound in every subsequent enabled activity; turning off the sound in an activity will only be active while playing in a given activity)

go to Knowla.fun or Knowla.edu mode selection

switch to Windows desktop view; the application will remain active on the taskbar at all times

Main menu - Knowla Web

previous planets/apps/activities

more planets/apps/activities

return to all planets view

full screen mode/exit full screen mode

go to settings: language selection, license key activation

log in/register to Knowla Web

Menu icons in activities - legend

exiting the activity to view of the planet (application selection); any changes made will be lost

reloading the activity; any changes made will be lost

sound on/off

exit to activity selection list, any changes will be lost

previous board

next board

accessibility panel (including colour adjustment)

interactive activity guide

Successful activity

Activity failed

Activity list
with quantity or time

The Planet Smart includes 9 apps with 96 activities:

1. Go through the maze - 3 levels, 30 activities
2. Planetarium - 1 activity with 10 solar system objects
3. Planets inside out - 1 activity, 3 solar system objects
4. Planet sizes - 1 activity, 8 solar system planets
5. Orbits - 1 activity, 8 solar system planets
6. Rocket into space - 1 activity
7. 3D Projection - 3 levels, 30 activities
8. 3D Constructions - 3 levels, 30 activities
9. Make Music - 1 activity

Go through the maze

Legend:

arrow - hint

number of remaining fields

board - all the fields and obstacles on which you need to build a road

empty field - green, you can lay a road on it

towers/houses/lanterns - the goal of the activity is to arrange a path between two buildings

obstacles - you can't build a road over them

selected field - a road element will be placed on it

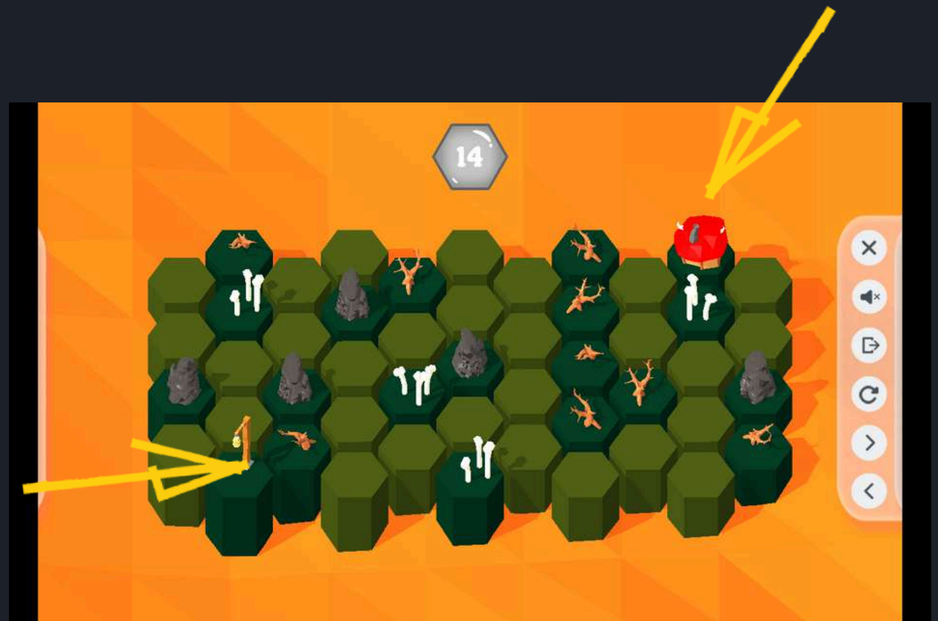
Go through the maze

Activity goal: connect the road items marked with arrows

Level 1

Level 2

Level 3



Go through the maze

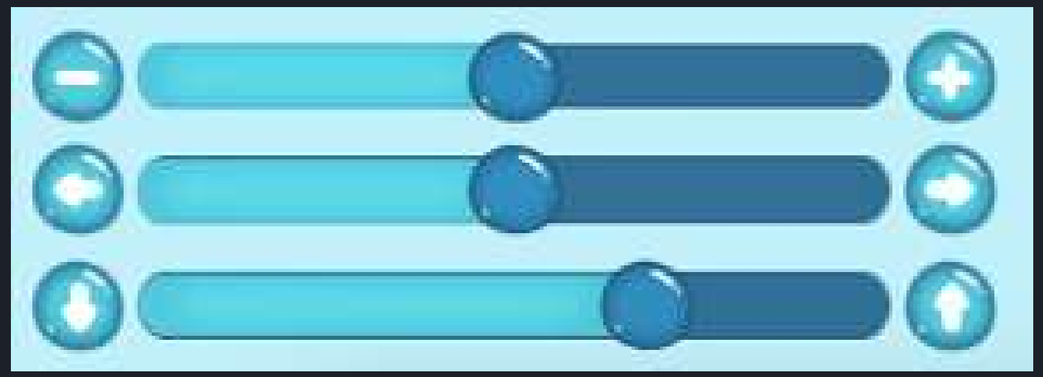
You should mark the shortest possible path between towers/spirals/houses/lanterns and avoid obstacles placed on the board, e.g. trees or rocks. You can only move on empty squares. One click on a field marks it. Pressing again unchecks the box and restores it to its original state. The number of checkboxes is shown at the top of the board. The activity is successful when the towers are connected by a road within the set limit.
Difficulty levels differ in the size of the maze and the appearance of the scenery.

Activity in education:

The activity allows the development of cause-and-effect thinking and helps to improve the skills of creative problem solving. It also consolidates mathematical operations.

Planetarium

zoom in/out



rotation in the horizontal plane

rotating in a vertical plane

Planetarium

In this activity you can look at the solar system from different perspectives and from different distances.

Activity in education:

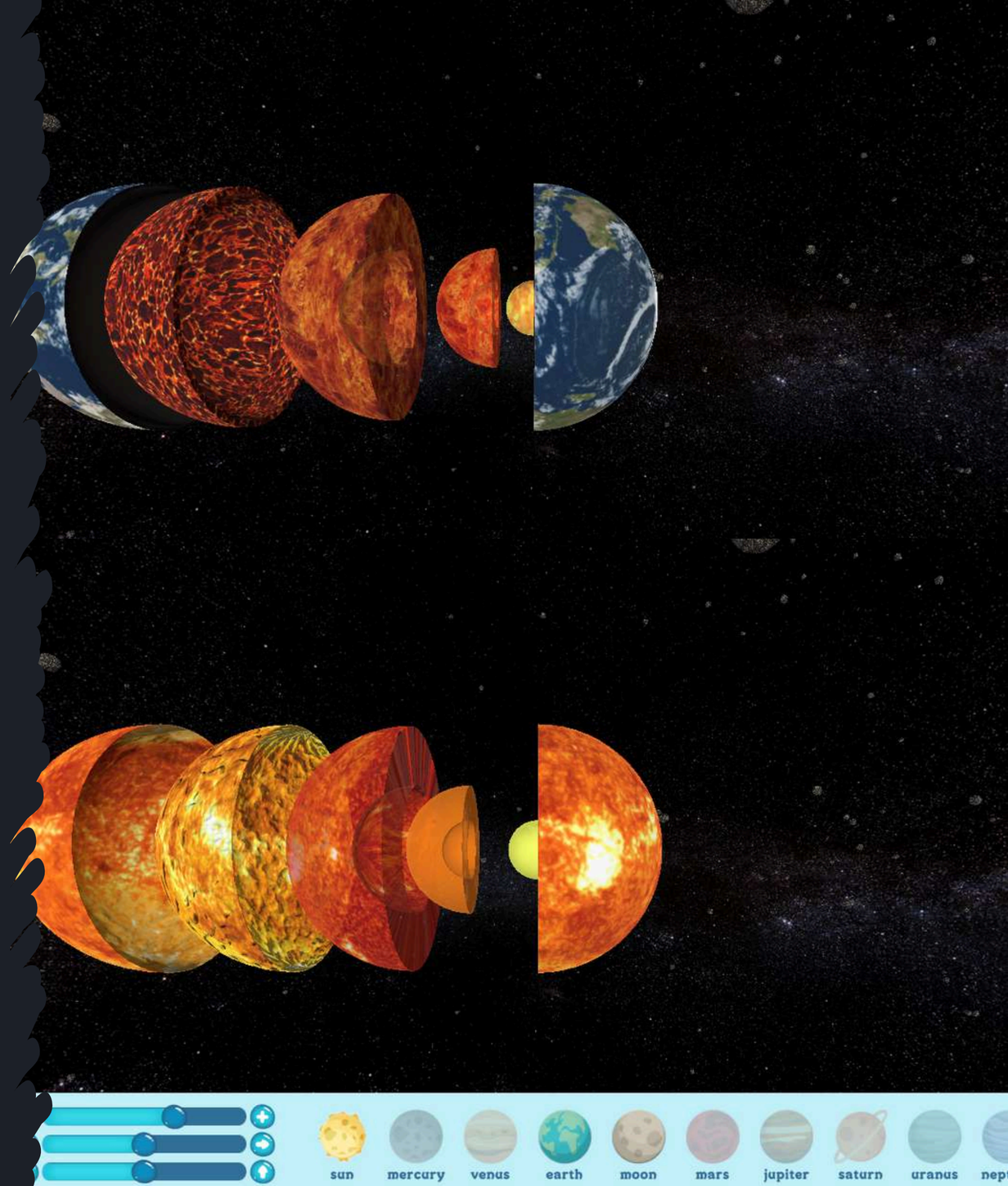
The activity can be carried out as part of the experimental and experiential acquisition of knowledge about the cosmos.

Planets inside out

In this application you can take a close look at the appearance of the individual planets of the solar system. In addition, you can look inside them. After "opening" a planet, an animation of the planet's layers will be displayed, which will then merge with the other half. If the participant wants to look at them again, they can press and drag next layers. The core of the planet no longer separates from the other half. Only selected objects are available for exploration.

Activity in education:

The activity can be carried out as part of the experimental and experiential acquisition of knowledge about the cosmos.

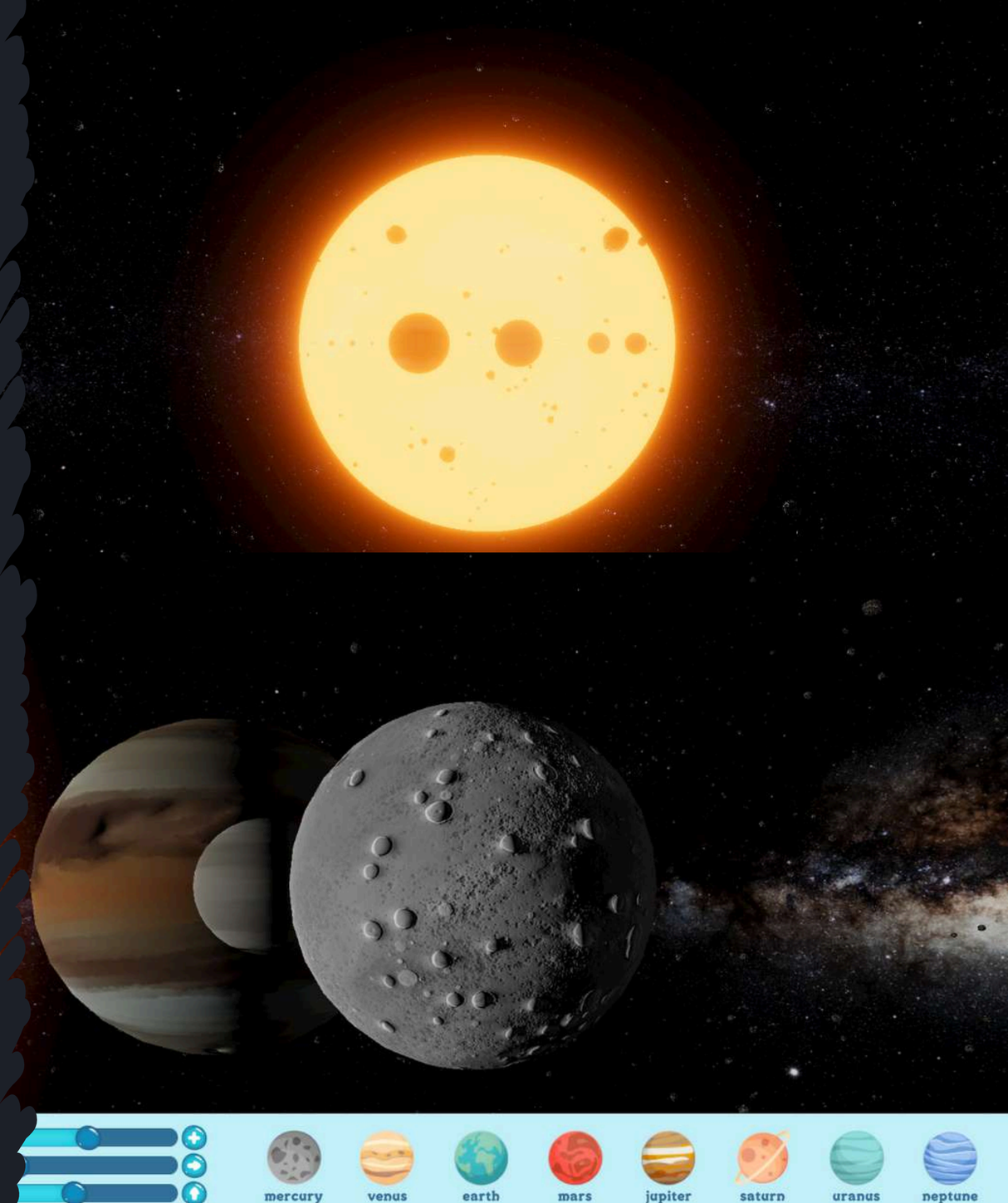


Planet sizes

In this activity, you can look at the solar system from different perspectives, and additionally observe the differences between the sizes of planets or the sun in more detail.

Activity in education:

The activity can be carried out as part of the experimental and experiential acquisition of knowledge about the cosmos.

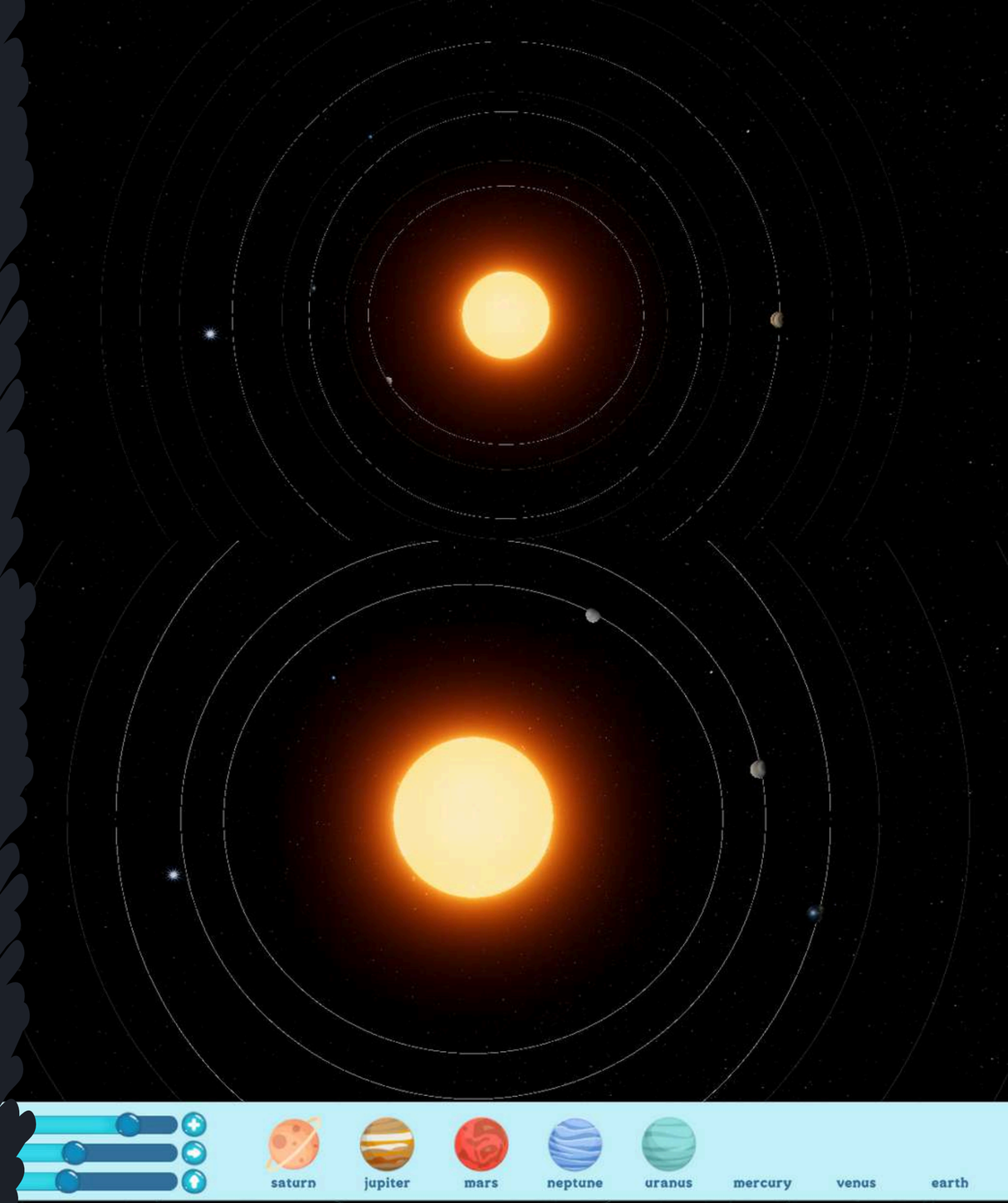


Orbits

The task of the participant is to set the planets in the appropriate orbits around the Sun. Grab the planet and move it into orbit. A properly aligned planet will begin to move around the sun. Incorrect will return to the place of selection. The activity is successful when all the planets are in their places.

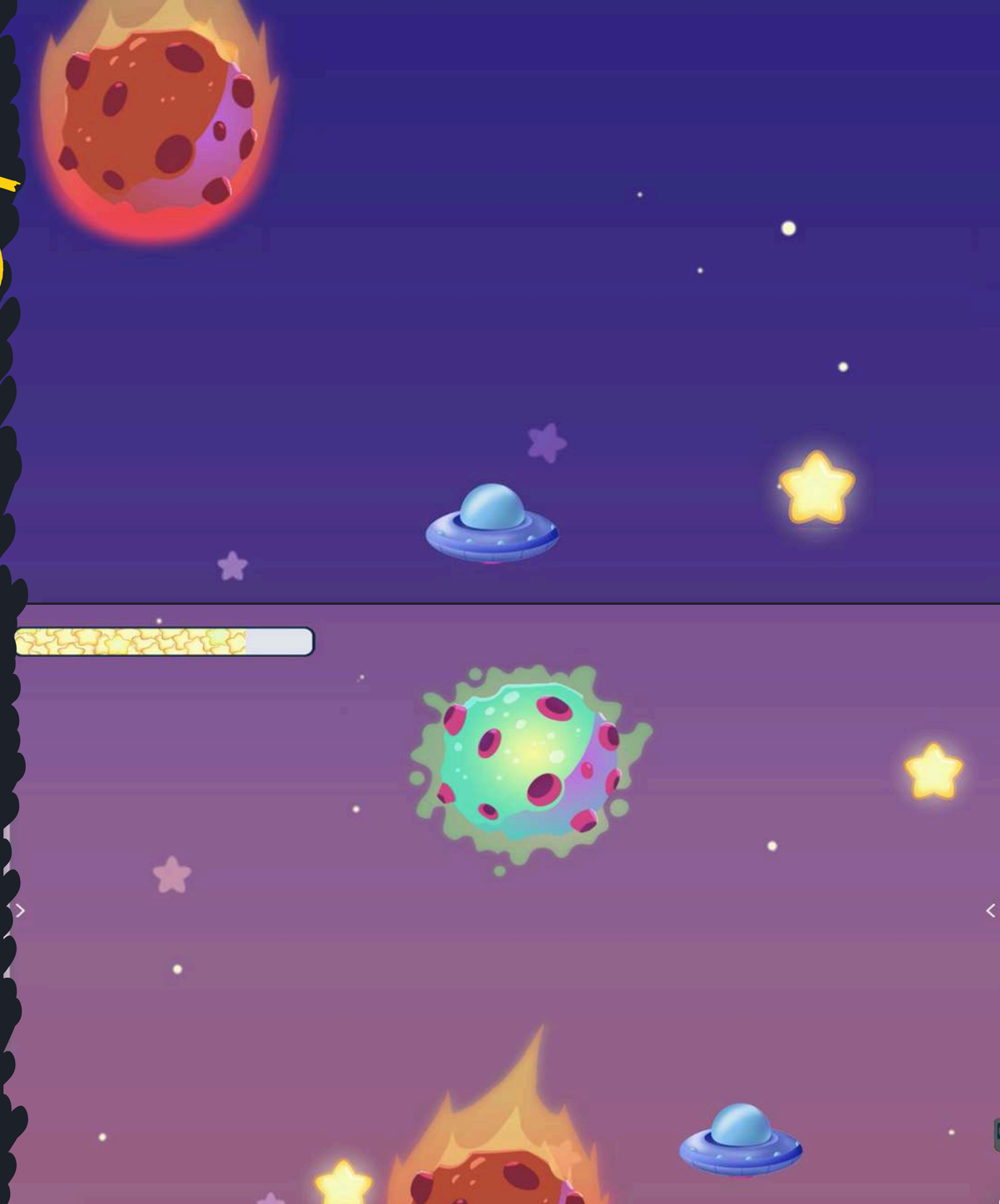
Activity in education:

The activity can be carried out as part of the experimental and experiential acquisition of knowledge about the cosmos.



Rocket into space

The task of the participant is to collect emotes that are fuel for the rocket and avoid meteorites. Click/throw the ball/press the pen in the right place to move the racket to the selected location.
The game ends when the rocket crashes into a meteorite or the emote fuel runs out.



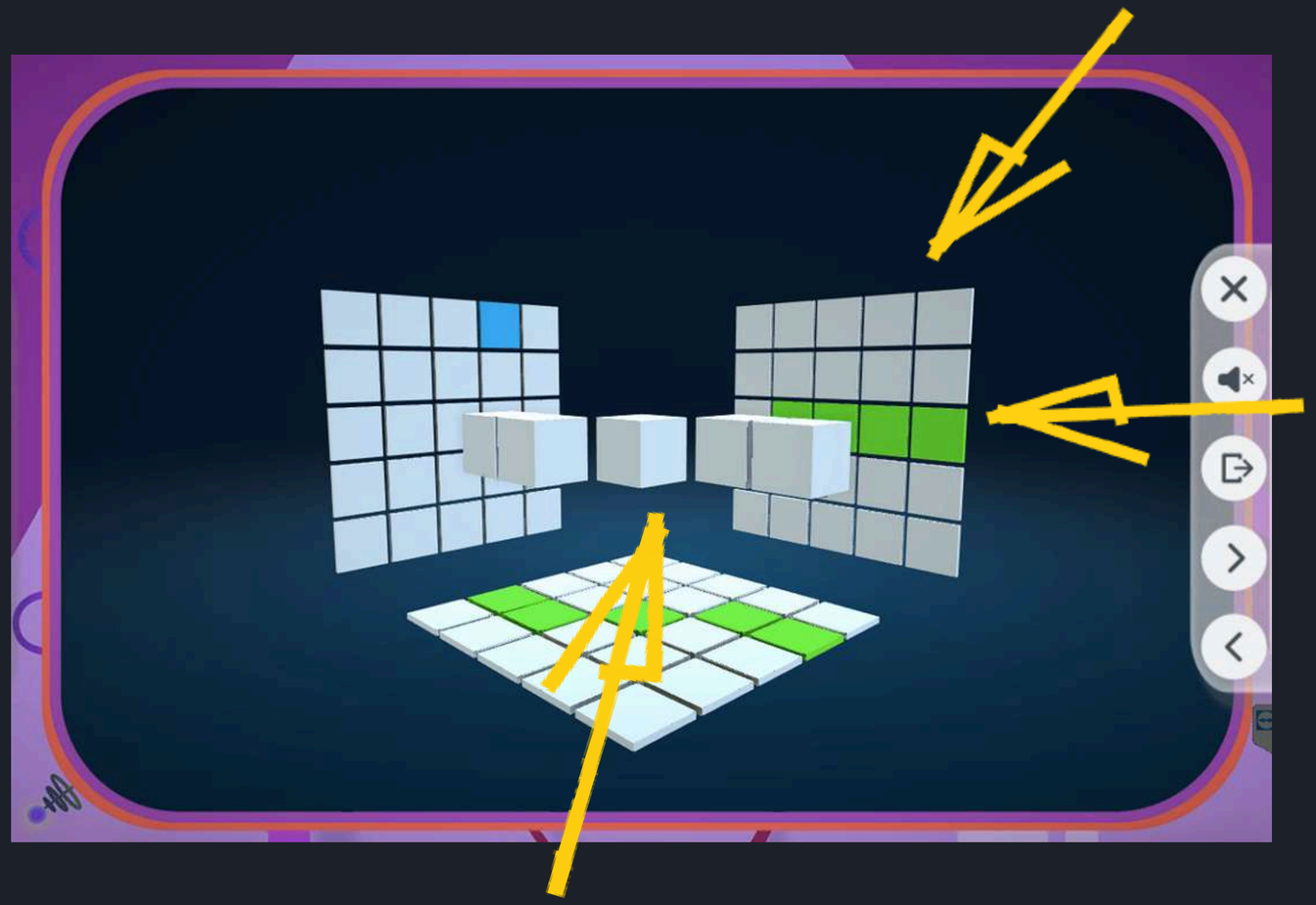
Activity in education:

The activity can be carried out as part of the experimental and experiential acquisition of knowledge about the cosmos. In fact, it is a much more entertaining activity than the previous ones. It can also train cause and effect skills (getting fuel, avoiding danger).

3D Projection

Legend:

- walls - projection in three planes, consist of tiles



- tile:
- blue - selected
- green - marked correctly
- red - marked incorrectly
- white - unchecked

- button on the pen - perspective rotation

- figure - consists of cubes

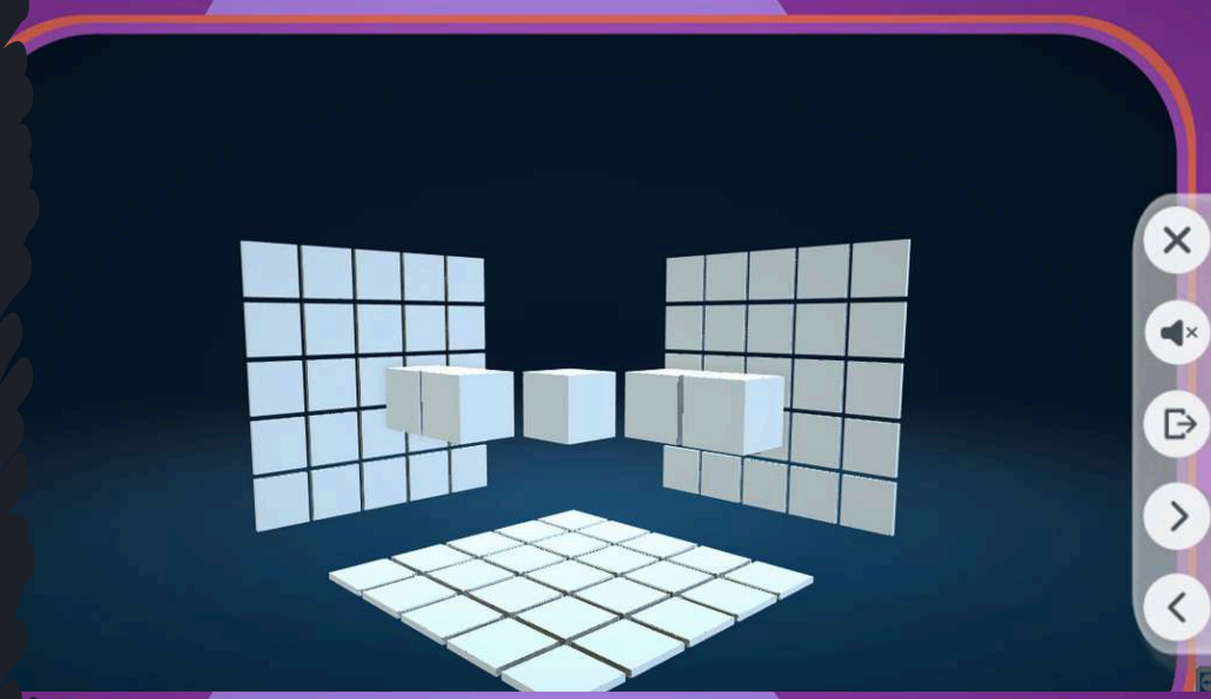
3D Projection

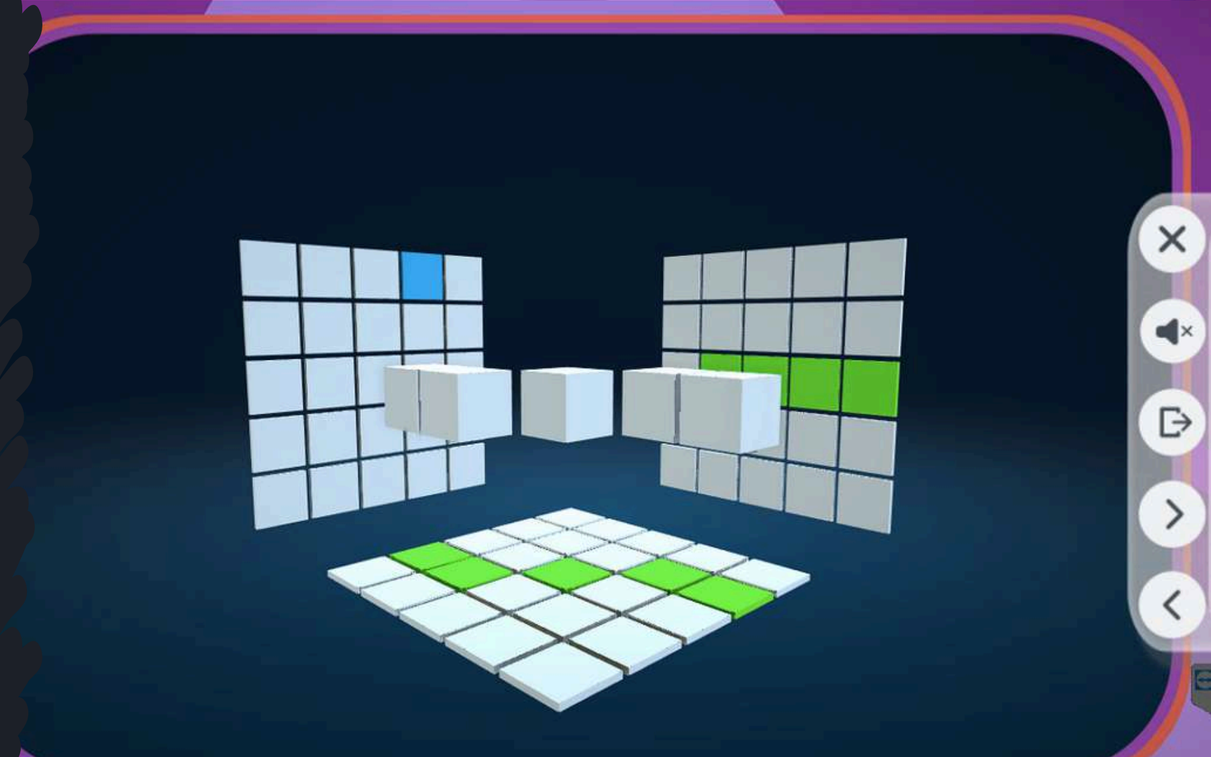
The task of the participant is to reproduce the shadow that may fall from the figure to the given faces. On each of them, just press the appropriate tile and hold it until it is selected. If it turns green, it is a valid selection, if it turns red, it is an invalid selection. You can rotate the figure by holding and dragging (e.g. on a mouse: hold down the left button and drag; Epson pen: hold down the button on the side of the pen and drag). The activity will be successful when all cuboids are correctly marked.

The levels differ in the difficulty of the construction.

Activity in education

Introduction to technical drawing. It supports the development of visual-spatial orientation and learning directions. Useful in professional training, including graphic, architectural, engineering.

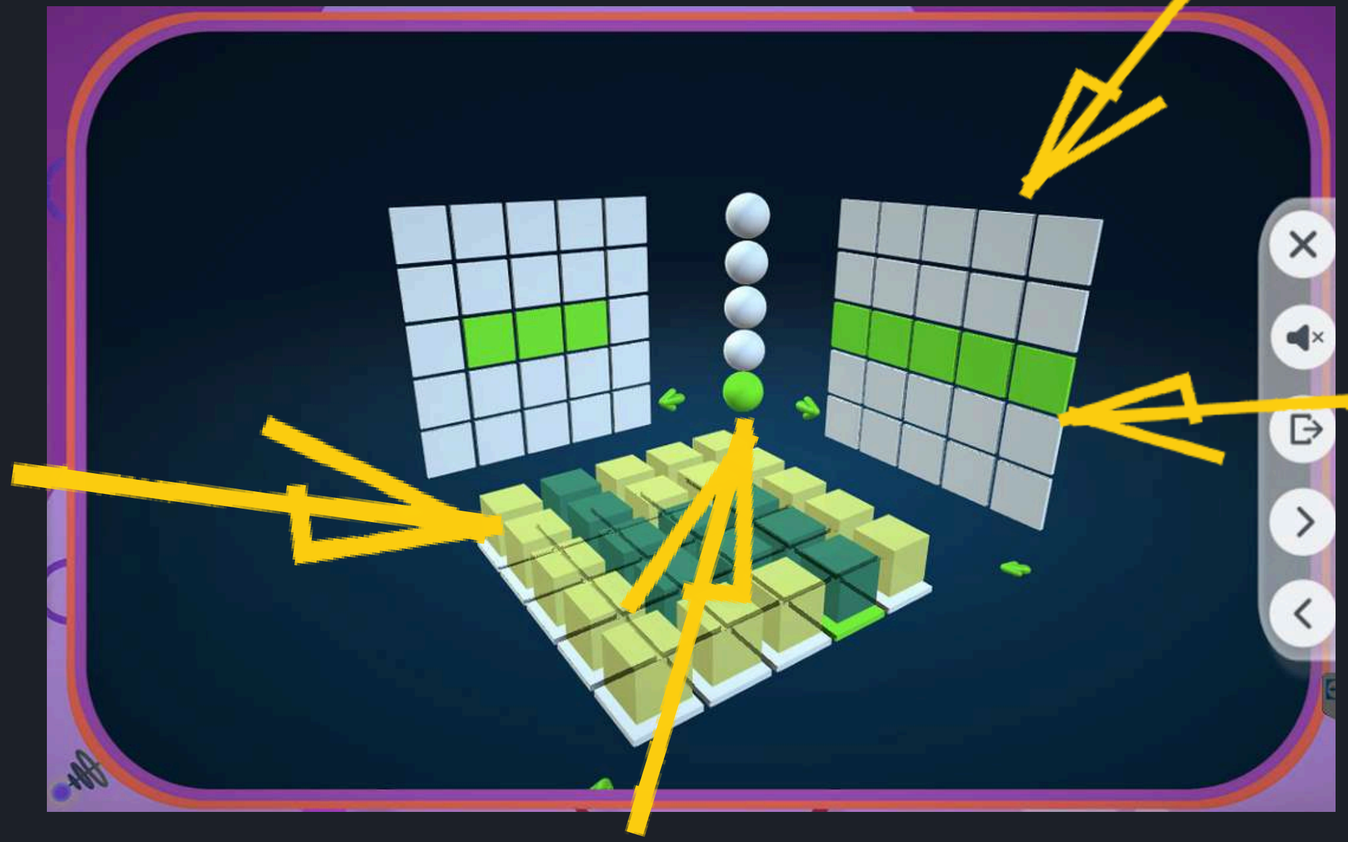




3D Construction

Legend:

- walls - projection in three planes, consist of tiles



cubicon:
dark green - marked
light green - unchecked

- tile:
- green - selected
- white - unchecked

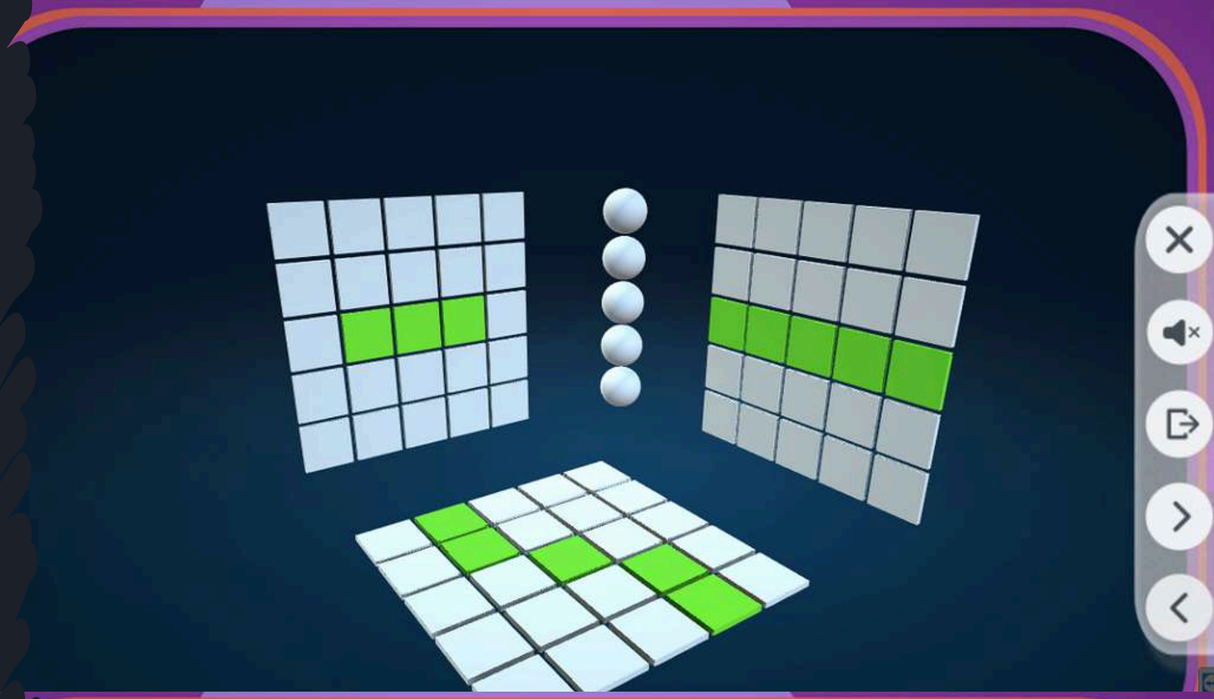
- balls: they are used to jump between successive floors of cubes
- green - the current floor of cubicles
- white - inactive floors of cubes

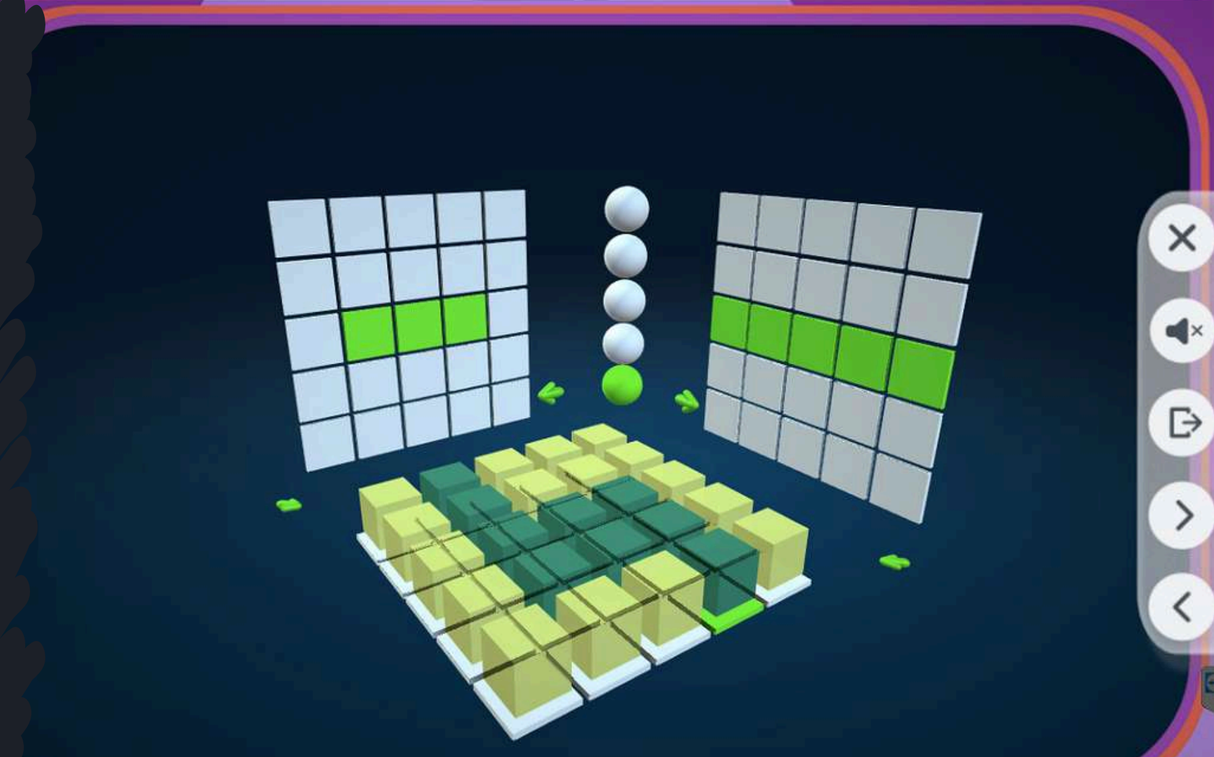
- button on the pen - perspective rotation

3D Construction

A shadow is marked on the board and the participant's task is to determine the shape of a spatial figure. Small cubes are marked between the walls. Just press on them and hold until they are selected. You can uncheck the box by clicking again. You can rotate the figure by holding and dragging (e.g. on a mouse: hold down the left button and drag; Epson pen: hold down the button on the side of the pen and drag). To move between successive layers of the figure, press the appropriate sphere located in the corner between the walls. The activity will be successful when all cubes are marked correctly.

The levels differ in the difficulty of the construction.





Activity in education:

Introduction to technical drawing. It supports the development of visual-spatial orientation and learning directions. Useful in professional training, including graphic, architectural, engineering.

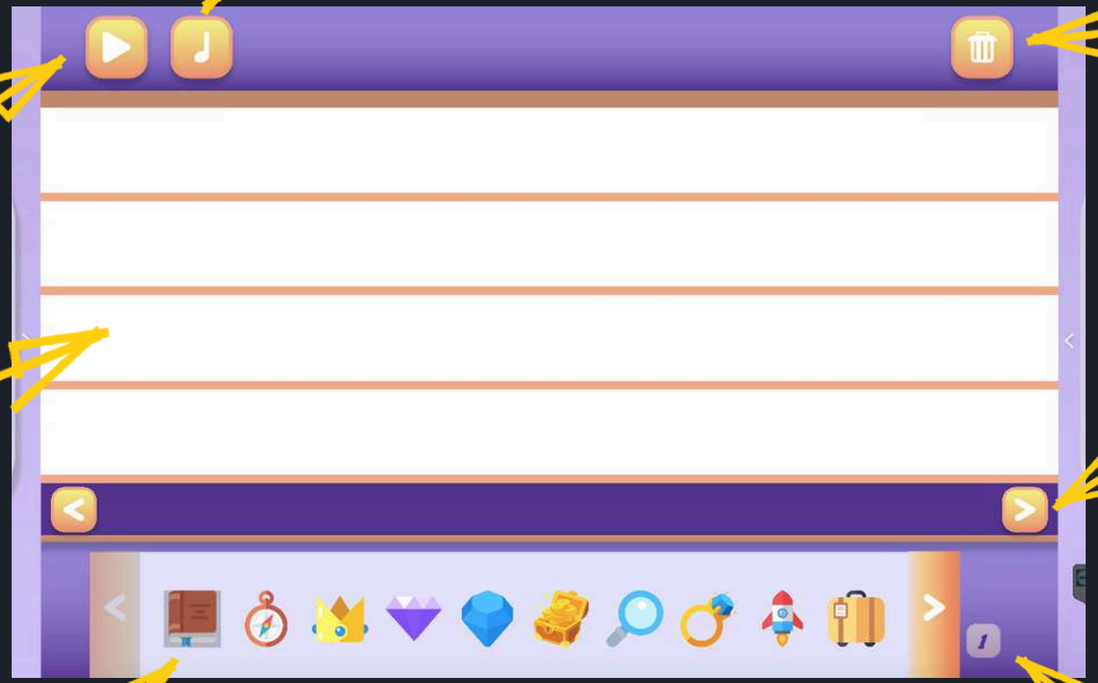
Make music

Legend:

play/stop - play or stop the melody

note - play faster or slower

trash - delete items



arrows - moving successive cards of the stave

“stave” - a field on which elements are placed

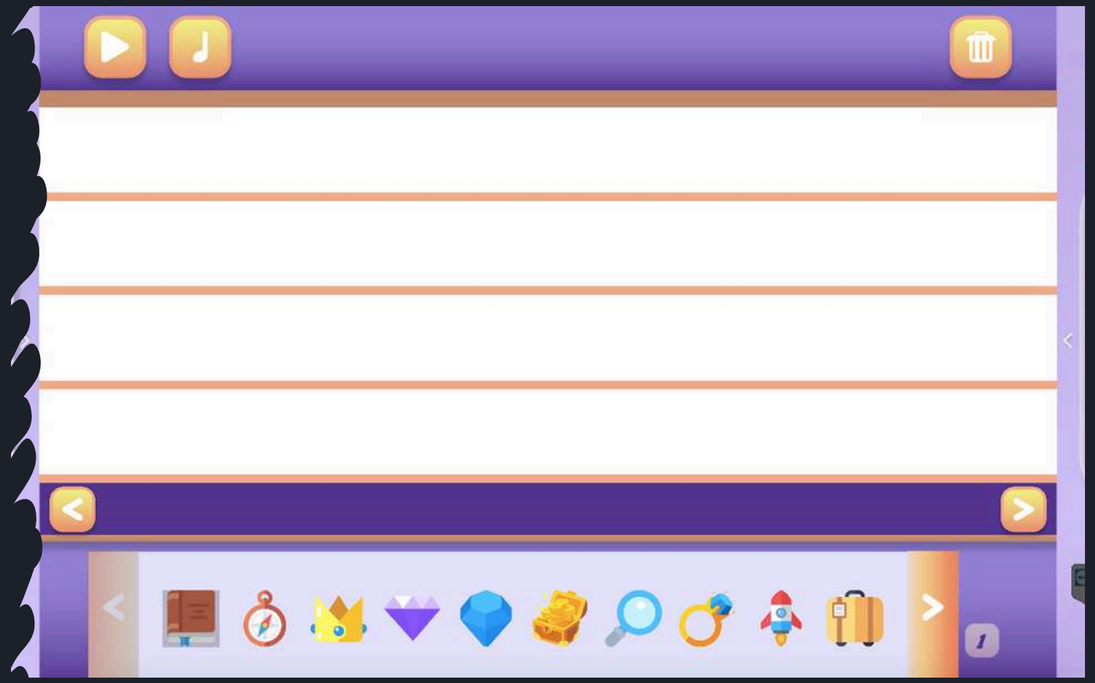
elements to use - pictures, each of them is a different sound, with the arrows we can switch the entire base of different elements

number - number of staff cards in order to be played

Make music

The activity sound should be turned on.

The activity consists in positioning the selected elements by dragging them to any place on the staff. Items on the right will play later than those on the left. Items on the same vertical line will play at the same time. Pay attention to the number of the staff card. The cards will be played sequentially from the first to the last, regardless of which elements have been set. After setting up, you can listen to your track in a faster or slower version.



Activity in education:

Having fun with sounds and music. Create your own track. It favors the development of creativity and rhythmic or musical abilities. They also acquire knowledge about the basic properties of sounds or about building compositions.

Planet in Education

Knowla

Core Curriculum for Kindergarten

Achievements of the child at the end of pre-school education

- Cognitive area of child development. A child prepared to start learning at school: experiments, estimates, predicts, measures the length of objects using, for example, a hand, foot, shoe; uses concepts related to natural phenomena, e.g. rainbow, rain, storm, leaf fall from trees, seasonal migration of birds, flowering of trees, freezing of water, regarding the life of animals, plants, people in the natural environment, the use of natural resources, e.g. mushrooms, fruits, herbs; undertakes independent cognitive activity, e.g. watching books, developing space with own construction ideas, using modern technology, etc.;

Terms and method of implementation

- The space also includes toys and teaching aids used to motivate children to take independent action, discover phenomena and ongoing processes, consolidate the acquired knowledge and skills, and inspire them to conduct their own experiments. It is essential that every child has the opportunity to use them without unreasonable time limits.
- Elements of the space in the kindergarten are properly equipped places for resting children (deck chair, mattress, mat, pillow), as well as elements of equipment suitable for children with special educational needs.

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Core Curriculum for early school grades I-III

The tasks of the school in the field of early childhood education include:

- ensuring access to valuable sources of information in the context of student development and modern technologies.

- organization of classes: adapted to the intellectual needs and developmental expectations of children, causing curiosity, amazement and joy of discovering knowledge, understanding emotions, feelings of one's own and other people, conducive to maintaining mental, physical and mental health and social (broadly understood health education); enabling the acquisition of experience through play, performing scientific experiments, exploration, conducting research, solving problems to the extent adequate to the developmental abilities and needs at a given stage and taking into account the individual capabilities of each child; supporting the perception of the natural environment and its exploration, the opportunity to learn about values and interconnections of components of the natural environment, learning about the values and norms that are the source of a healthy ecosystem, and behaviors resulting from these values, as well as discovering by the child himself as an important integral subject of this environment

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Teaching content - general requirements

- In terms of the cognitive area of development, the student achieves: the ability to ask questions, see problems, collect information needed to solve them, plan and organize activities, and solve problems; the ability to observe facts, natural, social and economic phenomena, to perform experiments and experiments, as well as the ability to formulate conclusions and observations; the ability to independently explore the world, solve problems and apply acquired skills in new life situations.

Teaching content - general requirements

- Achievements in understanding the natural environment. Student: Achievements in understanding geographical space; plans, performs simple observations, experiments and experiments on objects and natural phenomena, creates observation notes, explains the essence of the observed phenomena according to the cause-and-effect and time process;

- IT education. Achievements in the development of social competences. Learner: works with students, exchanges ideas and experiences with them using technology; uses the possibilities of technology to communicate in the learning process.

Knowla

The planet in educational practice

Knowla

The solar system is packing a backpack for a trip

Knowla's activity: Planetarium, Planets inside out, Planet sizes, Orbits - Planet Smart

What you need: prepared questions or worksheets

As part of space classes, you can go on an interplanetary journey with your students. On their own, they can experimentally view the Solar System from every side. Everyone can check what the cosmos looks like and try to answer the questions below on their own. It can also be a team task. All students can get all the questions, or you can draw one per student/team. When a given team/student is not experimenting, they can, for example, look for information, watch movies and photos about space, other prepared thematic tasks, prepare for a presentation in front of the class.

Sample tasks to check:

- What order are the planets in?
- What do their orbits look like and how do they move around them?
- What does it mean for a planet to make a full circle around the sun?
- We time the planets. Which is the fastest? Why is it like that?
- What does it mean that planets rotate on their own axis?
- Which spins the fastest?
- What do the individual planets look like? What's on them?
- Why and how does a solar and lunar eclipse occur?
- How are the phases of the moon formed?
- How are the seasons formed? (simply, you can use a ruler to measure the distance of the Earth's orbit to the Sun, this is how you will get the furthest point pointing to winter and the closest point pointing to summer, in the extended version, tell about the tilt of the planet relative to the orbit - this will explain why it is the other way around in Australia)

Additional task: Students imitate the movement of the planets with their own body movements based on their own observations of the model. Together they wonder if they reproduce well.

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The shadows arrange a theater of projection

Playing with shadows is common in matching tasks ("match the picture with its shadow"). Such examples include in Connecting activities on Planet Fruuu (dedicated to pens). Together with students, you can improve visual-spatial skills in a different form, learning slowly, e.g. projection. Here are some activities you can use within the topic.

- Mentioned task: "Match the picture with its shadow" or "Which of the presented shadows are the same".
- Shadow theater setup. Using real objects and observing their shadows from different angles. Cut shapes out of paper and display them on the wall.
- Prepare printed/cut shadows of various objects to think together about what they are. You can also use blots made by students or St. Andrew's wax.
- Pupils draw the shapes of real objects on paper from different sides (or only from one selected side), and then together they think about what they represent, from which side and whether they represent it well.
- Consideration of how a given visual scene can look like from different perspectives, e.g. a city from a bird's eye view, a standing man, a dog, ant, etc. What and what will they see? The use of VR goggles may be interesting here.
- The "3D Projection" activity allows you to mark the "shadow" (projection) squares of the figure in three perspectives.
- In the advanced group, you can go to the technical projection of the figure.

It’s smart to play.

For more inspiring content, please visit www.knowla.eu

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