Promatraj i istraži

ŽSV učitelja matematike u PŠ, Pazin

European Schoolnet

Transforming education in Europe

Ivana Gugić, prof. matematike i fizike

Go- Lab/Next- Lab ambasador

OŠ Frana Galovića, Zagreb

Email: ivana.gugic1@skole.hr

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- Profesorica matematike i fizike u OŠ Frana Galovića u Zagrebu
- 8 godina radnog iskustva u nastavi
- Sudjelovanje na nekoliko međunarodnih projekata iz fizike, matematike i astronomije
- Vanjski suradnik na projektima u organizaciji NCVVO-a
- Autorica pismenih ispita znanja, recenzent udžbenika za ŠK
- Suatorica Metodičkog priručnika za nastavnike matematike (izdavač ŠK)
- Go- Lab /Next - Lab ambasador za RH

Sadržaj predavanja

- O međunarodnim projektima – European Schoolnet
- Projektna i istraživačka znanstvena metoda- primjena u nastavi
- Go – Lab/Next- Lab projetki; Go- Lab portal
- Platforma *Graasp* - platforma za pisanje pripreme za nastavni sat s primjenom istraživačke metode

European Schoolnet - PROJEKTI

Projekti i organizacije u sklopu *European Schoolnet-a*

http://www.eun.org) :

-inGenious

-Go-lab/Next-Lab

-Scientix (CARNet koordinator)

-*ISE* projekt (CARNet koordinator)

Projektna i istraživačka metoda

Ciljevi primjene projektne i istraživačke metode u nastavi:

- stvoriti kod učenika naviku na interdisciplinarni rad i na usvajanje metoda znanstveno- istraživačkog rada
- poticati razvoj komunikacijskih, organizacijskih, kritičkih sposobnosti i mišljenja učenika, matematičko-logičkog mišljenja i razmišljanja, te njegovati timski rad
- razvijati digitalnu kompetenciju kod učenika češćom uporabom IKTa na nastavnom satu
- unaprijediti proces učenja i poučavanja novim didaktičko –metodičkim pristupima, primjenom e-učenja
- kod učenika potaknuti razvoj nekih ključnih kompetencija**,** a koje su važne u konceptu cjeloživotnog učenja (*matematičku i digitalnu* kompetenciju, *osnovne kompetencije u prirodoslovlju*, te kompetenciju *Učiti kako učiti*)

Go- Lab portal ; Go-Lab/Next –Lab projekt

- http://www.golabz.eu/
- **Projekti kojima je cilj korištenje IKT-a na nastavi prirodoslovno-matematičkih predmeta**
- **Omogućavaju uporabu on-line simulacija, virtualnih labaratorija, aplikacija, alata za izradu kvizova, edukativne igre…**
- **Odabir nastavnih jedinica (istraživačkih prostora) po predmetima i dobi učenika**

Virtualni labaratoriji

GO-LAB Labs Apps Spaces Authoring Support About

Area Builder

Type Virtual Lab

Lab Owner Amanda Mcgarry, Ariel Paul, Beth Stade, Bryce Gruneich, John Blanco, Karina K.r. Hensberry, Kathy Perkins, Phet Interactive Simulations

Age Range Before 7, 7-8, 9-10, 11-12

Subject Domains Geometry, Mathematics

Languages Basque, Chinese, Danish, Dutch, English, French, German, Greek, Hindi, Hungarian, Italian, Japanese, Latvian, Polish, Portuguese, Russian, Serbian, Slovak, Spanish, Swedish, Turkish

more ...

Description

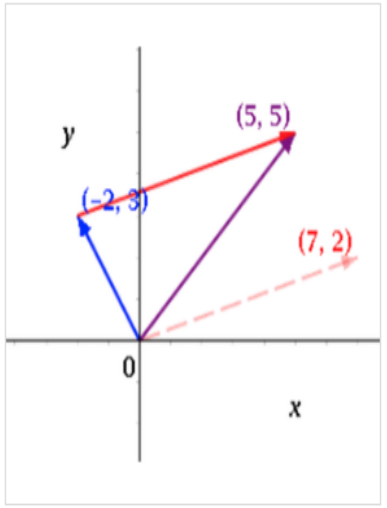
Create your own shapes using colorful blocks and explore the relationship between perimeter and area. Compare the area and perimeter of two shapes side-by-side. Challenge yourself in the game screen to build shapes or find the area of funky figures. Try to collect lots of stars!

Screenshots

Additional Information

GO-LAB Labs Apps Spaces Authoring Support About

Vector Addition



Type Virtual Lab

Lab Owner Denis Gillet

Contact Person Denis Gillet

Age Range 13-14, 15-16, Above 16

Subject Domains Elementary Plane Geometry, Geometry, Mathematics

Languages English

Booking Required No

Registration Required No

Preview Link http://gateway.golabz.eu/os/p...

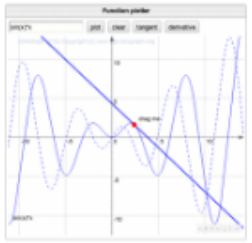
more ...

Description

Tool to practice with vector addition

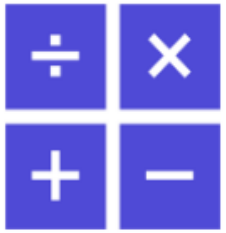
GO-LAB
GLOBAL ONLINE SCIENCE LABS
INQUIRY LEARNING AT SCHOOL

Aplikacije



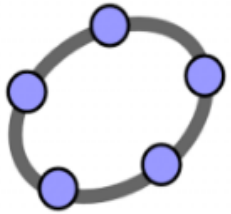
Function Plotter

This app plots mathematical functions. Multiple functions can be drawn in the same plot. Derivative and a tangent can be inserted for the last added function via the press of a button.



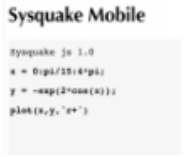
Calculator

A simple calculator which supports addition, subtraction, multiplication, division, square root and exponentiation.



Geogebra

The Geogebra app enables teachers to embed Geogebra materials to their Inquiry Learning Spaces. Links for Geogebra materials can be retrieved from https://www.geogebra.org/

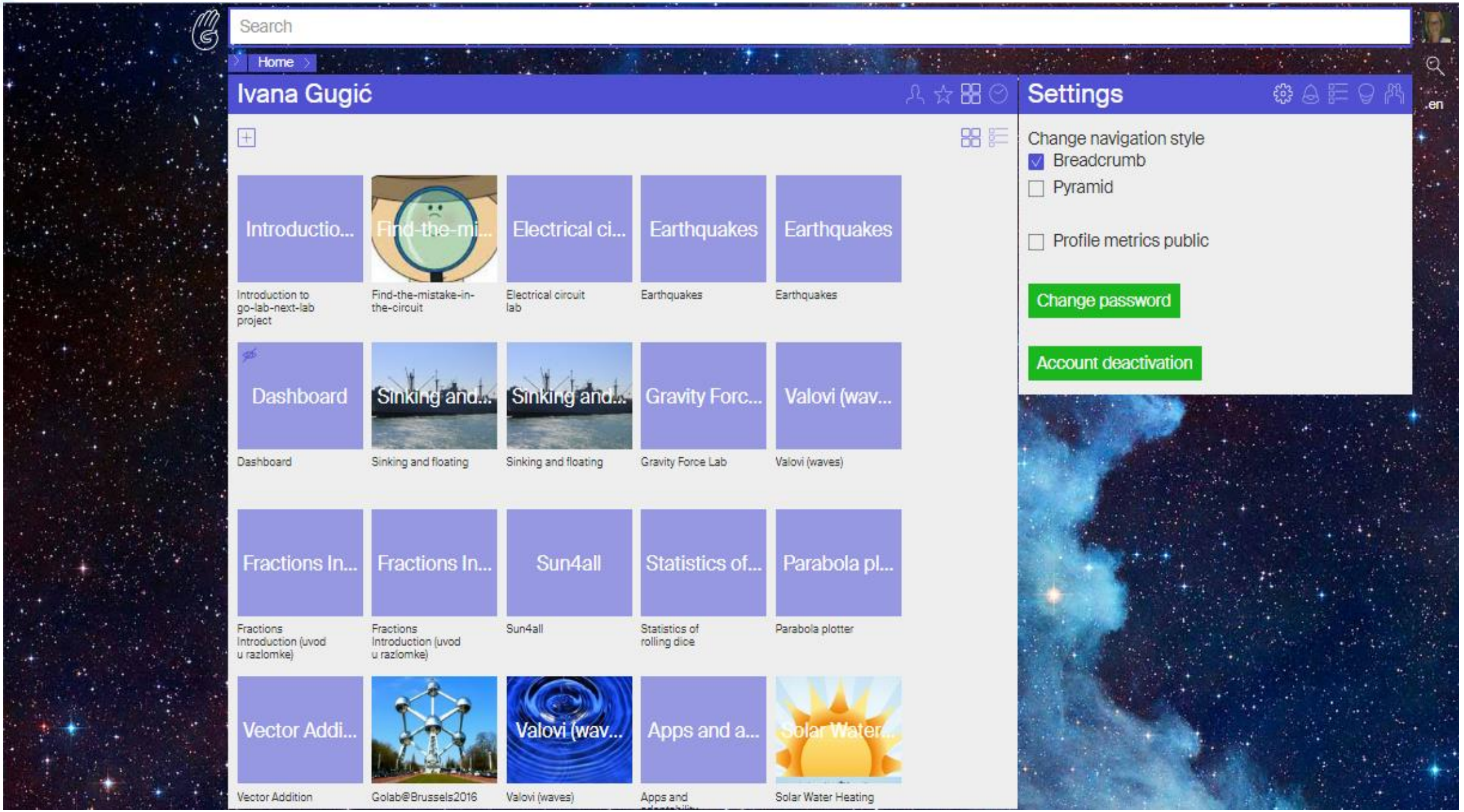


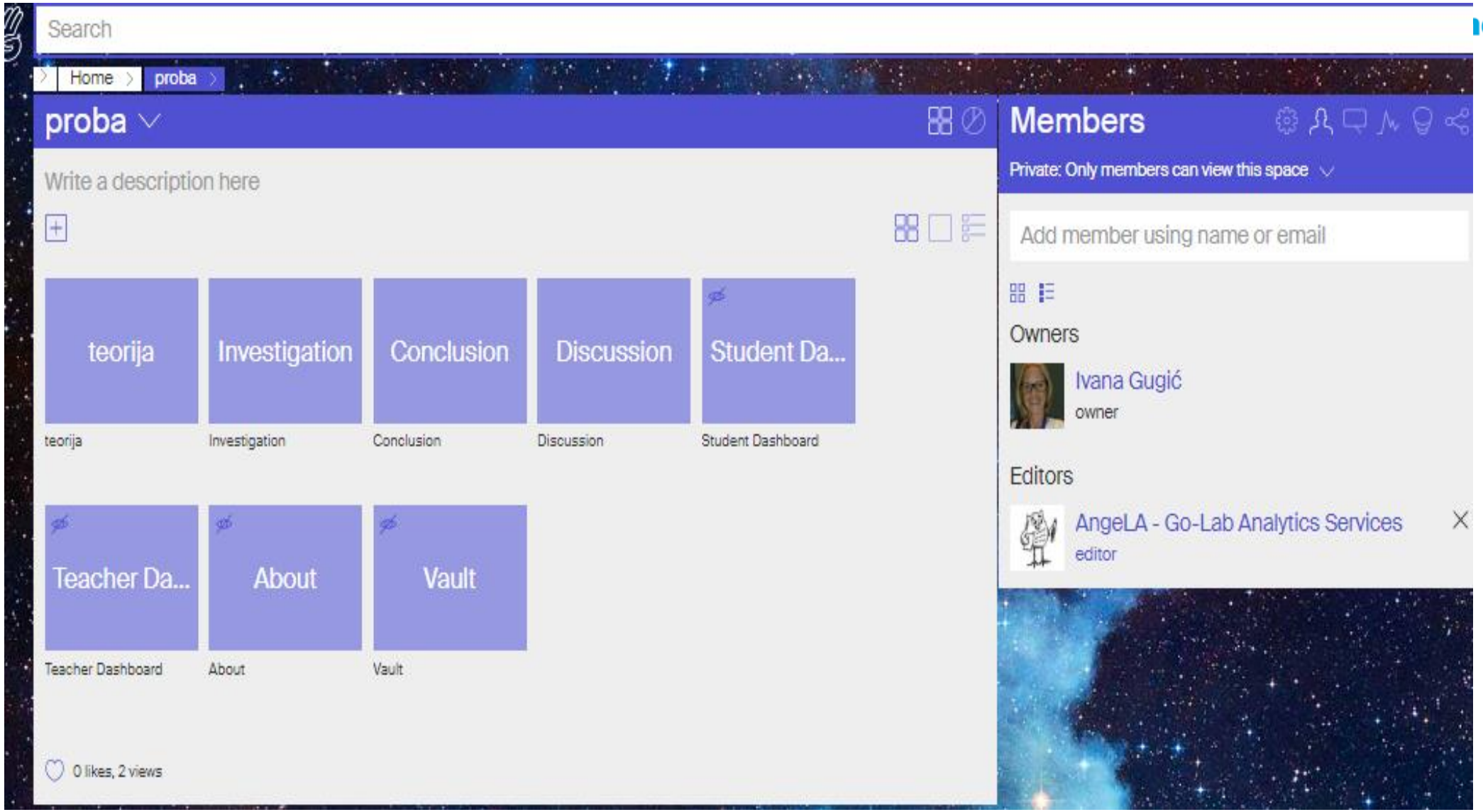
Sysquake

This app allows the use of Matlab in an Inquiry Learning Space.

GRAASP –platforma za pripremu nastavnih jedinica (Istraživačkih prostora, ILS-a – “Inquiry learning speaces”) s primjenom istraživačke metode

http://graasp.eu/


Search
Home
Ivana Gugić
Introductio...
Introduction to go-lab-next-lab project
Find-the-mi...
Find-the-mistake-in-the-circuit
Electrical ci...
Electrical circuit lab
Earthquakes
Earthquakes
Earthquakes
Earthquakes
Dashboard
Dashboard
Sinking and...
Sinking and floating
Sinking and...
Sinking and floating
Gravity Forc...
Gravity Force Lab
Valovi (wav...
Valovi (waves)
Fractions In...
Fractions Introduction (uvod u razlomke)
Fractions In...
Fractions Introduction (uvod u razlomke)
Sun4all
Sun4all
Statistics of...
Statistics of rolling dice
Parabola pl...
Parabola plotter
Vector Addi...
Vector Addition
Golab@Brussels2016
Valovi (wav...
Valovi (waves)
Apps and a...
Apps and
Solar Water...
Solar Water Heating
Settings
Change navigation style
Breadcrumb
Pyramid
Profile metrics public
Change password
Account deactivation
.en

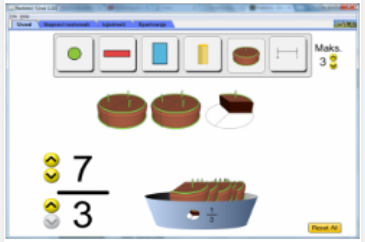

Search
Home
proba
proba
Write a description here
teorija
Investigation
Conclusion
Discussion
Student Da...
teorija
Investigation
Conclusion
Discussion
Student Dashboard
Teacher Da...
About
Vault
Teacher Dashboard
About
Vault
0 likes, 2 views
Members
Private: Only members can view this space
Add member using name or email
Owners
Ivana Gugić
owner
Editors
AngeLA - Go-Lab Analytics Services
editor

Primjer pripreme za nastavni sat- Valovi i Uvod u razlomke

GO-LAB Search Online Labs Apps Inquiry Spaces Big Ideas Support About Forum

Fractions Introduction (uvod u razlomke)

by Ivana Gugic



Age range: 10-12
Language: Croatian
Level of difficulty: Medium
Average learning time: 2 didactic hours
Access rights: Creative Commons Attribution (CC BY)
Contact Person: Ivana

Like 1 Tweet G+

Preview

Copy & use this Inquiry Space

Description:
Istražujte osnovno o razlomcima: koliko je 1/3 čokoladne torte, polovina kruga... s pomoću zabavne interaktivne simulacije predvidite i objasnite kako se mijenja vrijednost razlomka ako se promijene vrijednosti brojnika ili nazivnika, napravite dva razlomka jednakih vrijednosti, uspoređujte razlomke. Spojite oblike i razlomke, osvojite zvjezdice (poene).

GO-LAB Search Online Labs Apps Inquiry Spaces Big Ideas Support About Forum

Valovi (waves)

by Ivana Gugic

Age range: 12-14
Language: Croatian
Level of difficulty: Medium
Level of interaction: Medium
Average learning time: 2 didactic hours
Access rights: Creative Commons Attribution (CC BY)
Contact Person: Ivana

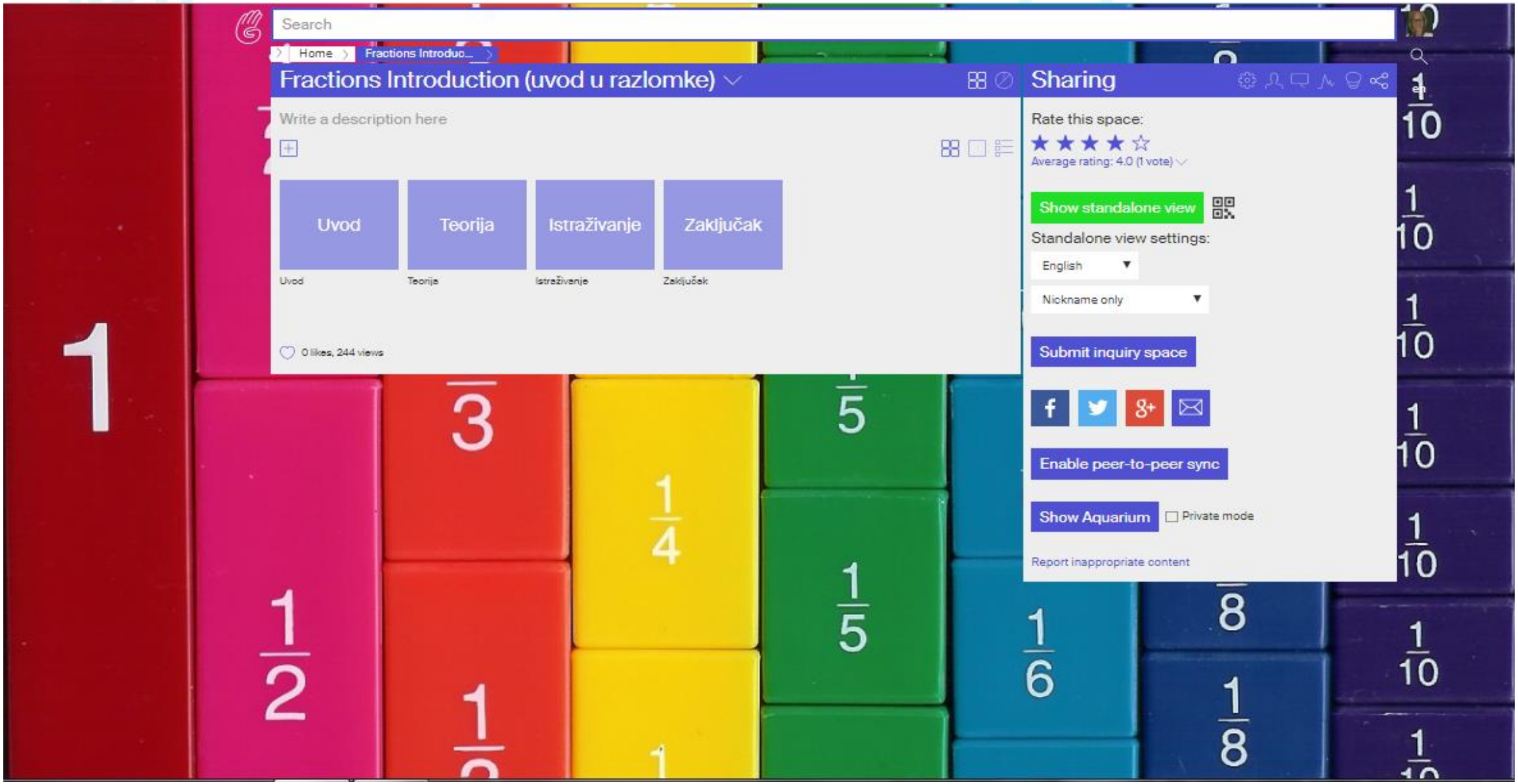
Like 0 Tweet G+

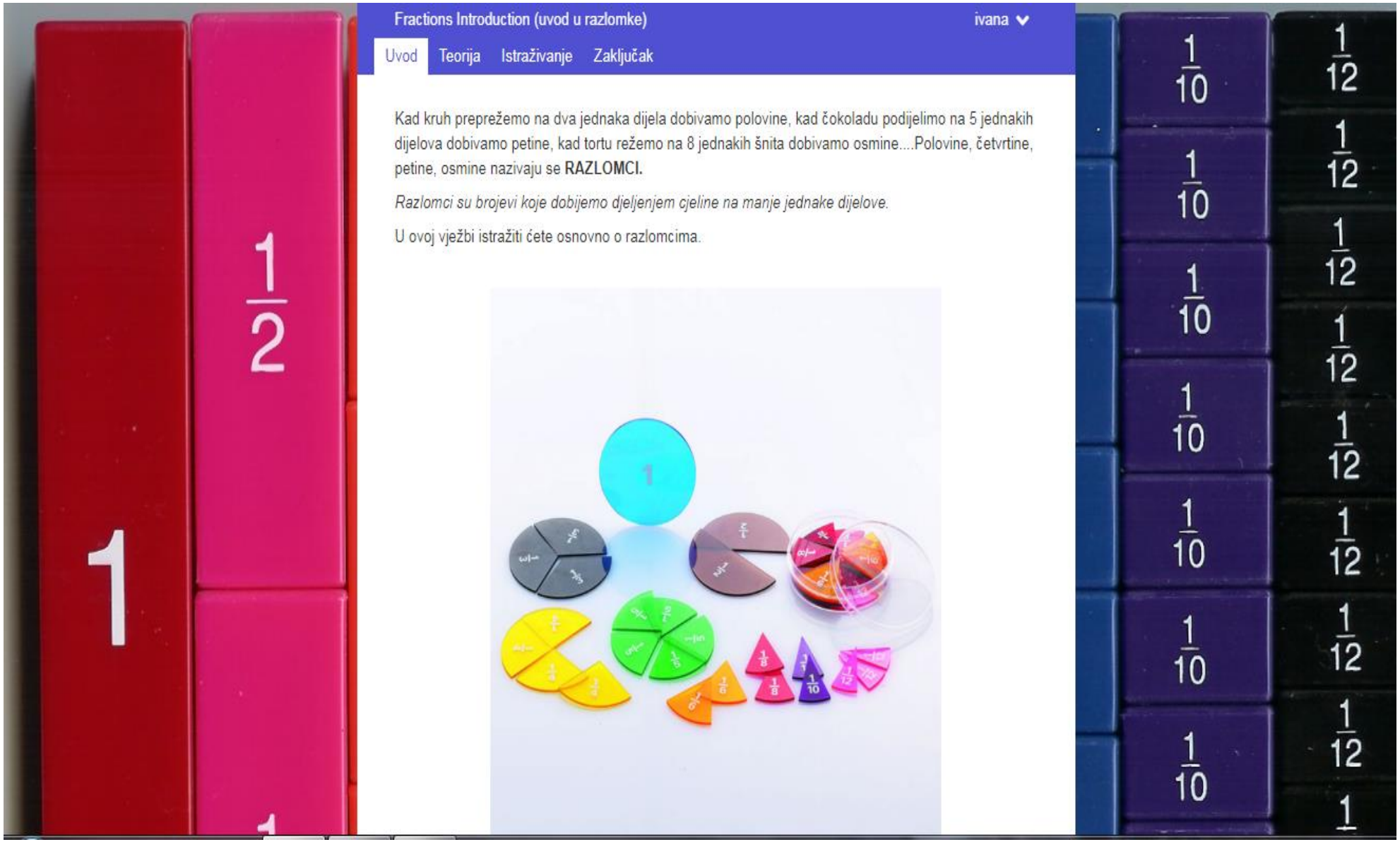
Preview

Copy & use this Inquiry Space

Description:
Explore with PhET simulation,videos and worksheets what is a wave, what makes a wave *a wave,* what are some basic characteristics of waves, are all waves the same, what is wavelength, wave amplitude and frequency, how tsunamis are formed and what causes an earthquake.

Primjer ILS-a - *Uvod u razlomke*




Fractions Introduction (uvod u razlomke)
ivana
Uvod
Teorija
Istraživanje
Zaključak
Kad kruh prepružemo na dva jednaka dijela dobivamo polovine, kad čokoladu podijelimo na 5 jednakih dijelova dobivamo petine, kad tortu režemo na 8 jednakih šnita dobivamo osmine....Polovine, četvrtine, petine, osmine nazivaju se RAZLOMCI.
Razlomci su brojevi koje dobijemo djeljenjem cjeline na manje jednake dijelove.
U ovoj vježbi istražiti ćete osnovno o razlomcima.
1
1/2
1/10
1/12

Fractions Introduction (uvod u razlomke) ivana

Uvod | Teorija | Istraživanje | Zaključak

Najprije u bilježnicu **odgovori na pitanja**, a zatim provjeri s pomoću aplikacija u *Istraživanju* jesi li tvoji odgovori točni.

1. Što pokazuje brojnik (gornji broj), a što nazivnik (donji broj) ?

2. Koju računsku radnju zamjenjuje razlomak?

3. Što iskazujemo razlomkom?

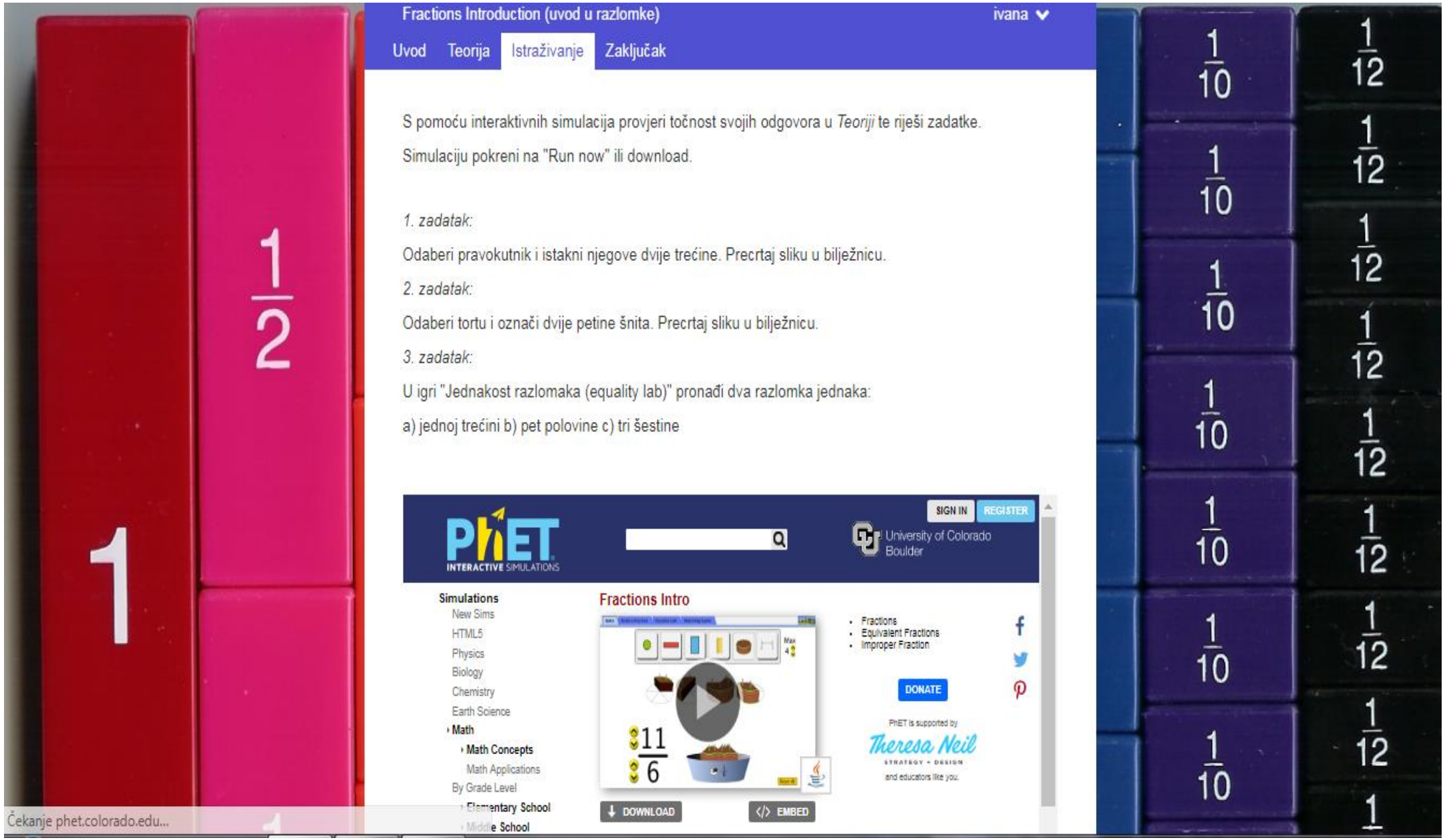
4. Može li razlomak biti jednak 1? Kada je razlomak manji, a kada veći od 1?

5. Može li se svaki prirodan broj zapisati u obliku razlomka?

6. Može li se svaki razlomak zapisati u obliku prirodnog broja?

7. Istraži što su mješoviti brojevi i od čega se sastoje.

8. Istraži za koje razlomke kažemo da su pravi, a za koje da su nepravi razlomci? Nacrtaj sliku s pomoću aplikacija pravog i nepravog razlomka.


Fractions Introduction (uvod u razlomke)
ivana
Uvod
Teorija
Istraživanje
Zaključak
S pomoću interaktivnih simulacija provjeri točnost svojih odgovora u *Teoriji* te riješi zadatke.
Simulaciju pokreni na "Run now" ili download.
1. zadatak:
Odaberi pravokutnik i istakni njegove dvije trećine. Precrtaj sliku u bilježnicu.
2. zadatak:
Odaberi tortu i označi dvije petine šnita. Precrtaj sliku u bilježnicu.
3. zadatak:
U igri "Jednakost razlomaka (equality lab)" pronađi dva razlomka jednaka:
a) jednoj trećini b) pet polovine c) tri šestine
PhET
INTERACTIVE SIMULATIONS
SIGN IN
REGISTER
University of Colorado Boulder
Simulations
New Sims
HTML5
Physics
Biology
Chemistry
Earth Science
Math
Math Concepts
Math Applications
By Grade Level
Elementary School
Middle School
Fractions Intro
Fractions
Equivalent Fractions
Improper Fraction
DONATE
PhET is supported by
Theresa Neil
STRATEGY + DESIGN
and educators like you.
DOWNLOAD
EMBED
Čekanje phet.colorado.edu...

Fractions Introduction (uvod u razlomke) ivana

Uvod Teorija Istraživanje Zaključak

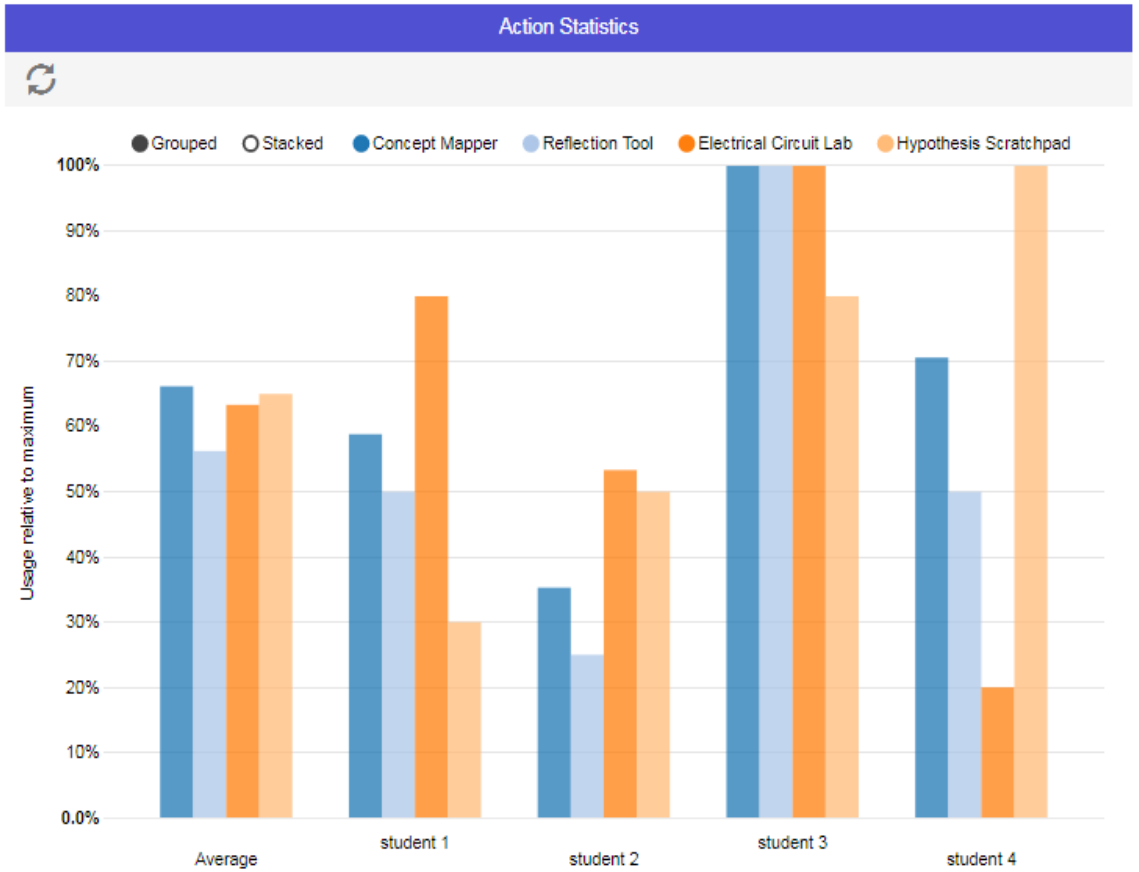
Napiši svoj zaključak koristeći se odgovorima na pitanja iz *Teorije* što si osnovno naučio/naučila o razlomcima.

Napravi kviz o razlomcima s pomoću neke aplikacije za izradu kvizova.

Aplikacije koje se mogu postaviti unutar nastavne jedinice (ILSa) za praćenje rada učenika

Description

This app displays the number of actions of the students in an ILS per app as a bar chart. Students can adapt the visualisation by filtering for apps and by altering the representation.



Student Time Spent

Category	Go-Lab Inquiry Apps
Creator	David Sandoz
License	Creative Commons Attribution-Sharealike (BY-SA)
Source Code	http://shindig2.epfl.ch/gadge...
Works Offline	No

Description

This app displays a table with the time spent for each student in each phase of an Inquiry Learning Space (a Go lab learning environment). The time spent is updated in real time for each user and phase.

Please, place this app in an inquiry space to visualise the time spent by users in inquiry phases.

	Orientation	Conceptualisation	Investigation	Discussion	Conclusion	Dashboar
Average time	00:30	00:02	00:10	00:05	00:00	01:00
stennn	00:00	00:00	00:00	00:00	00:00	04:47
ton	00:31	00:01	00:00	00:00	00:00	01:41
Alex	00:00	00:00	01:11	00:07	00:52	00:00
adrian	00:00	00:00	00:00	00:00	01:27	00:14
chus	00:03	00:01	00:01	00:10	01:04	00:01
amy	00:02	00:03	00:01	00:02	00:02	00:22
voz	00:00	00:00	00:00	00:00	00:05	00:00

Teacher Feedback

Category	General Apps
Creator	Alexandros Trichos, Panagiotis Zervas
License	Creative Commons Attribution-Noncommercial (CC BY-NC)
Source Code	http://shindig2.epfl.ch/gadge...
Works Offline	No

Description

The teacher feedback app enables teachers to provide feedback to their students. This can be achieved by opening the link of the standalone user (available in the members section at the authoring view), proceed to the phase where this app has been located, and enter the comments in box

Please type your feedback here

Aplikacije koje se mogu postaviti unutar nastavne jedinice (ILSa) za učenike

Input Box

Category	General Apps
Creator	Alexandros Trichos, Panagiotis Zervas
License	Creative Commons Attribution-Noncommercial (CC BY-NC)
Source Code	http://shindig2.epfl.ch/gadge...
Works Offline	No

Description

A simple note taking app for the students. This app automatically saves the notes for each student separately.

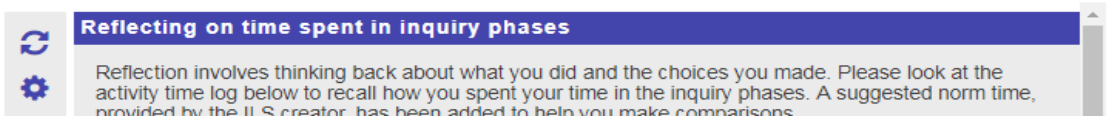
Type here

Reflection Tool

Category	Go-Lab Inquiry Apps
Creator	Anjo Anjewierden, Sven Manske, Tobias Hecking
License	Creative Commons Attribution-Sharealike (CC BY-SA)
Source Code	http://go-lab.gw.utwente.nl/p...
Works Offline	No

Description

The Reflection Tool gives feedback to students about their use of an Inquiry learning Space (ILS). The tool displays the percentage of time a student has spent in the various inquiry phases compared to a percentage norm set by the teacher (see image). Students are prompted to reflect on their ILS use by a number of questions teachers can enter during configuration.



File Drop

Category	Collaboration Apps
Creator	Maria Jesus Rodriguez Triana, Na Li
License	Creative Commons Attribution-Noncommercial (CC BY-NC)
Source Code	http://shindig2.epfl.ch/gadge...
Works Offline	No

Description

This app allows students to upload files, e.g., assignment and reports, to the Inquiry learning Space. The app also allows teachers to download the uploaded files.

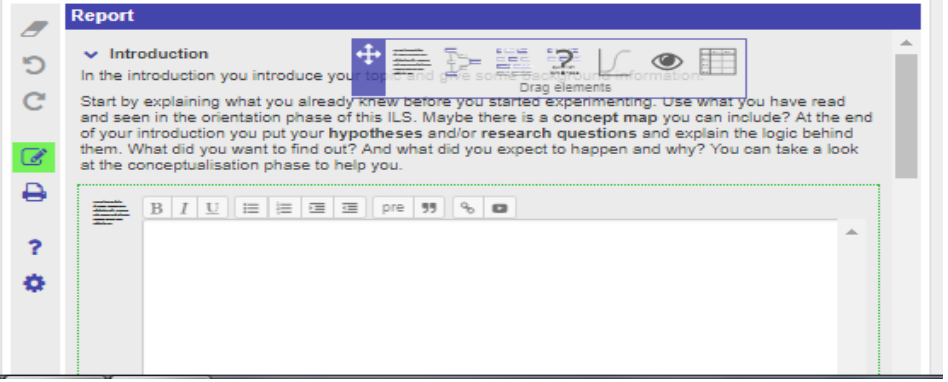
Report Tool

Category	Go-Lab Inquiry Apps
Creator	Jakob Sikken
License	Creative Commons Attribution-Noncommercial (CC BY-NC)
Source Code	http://go-lab.gw.utwente.nl/p...
Works Offline	No

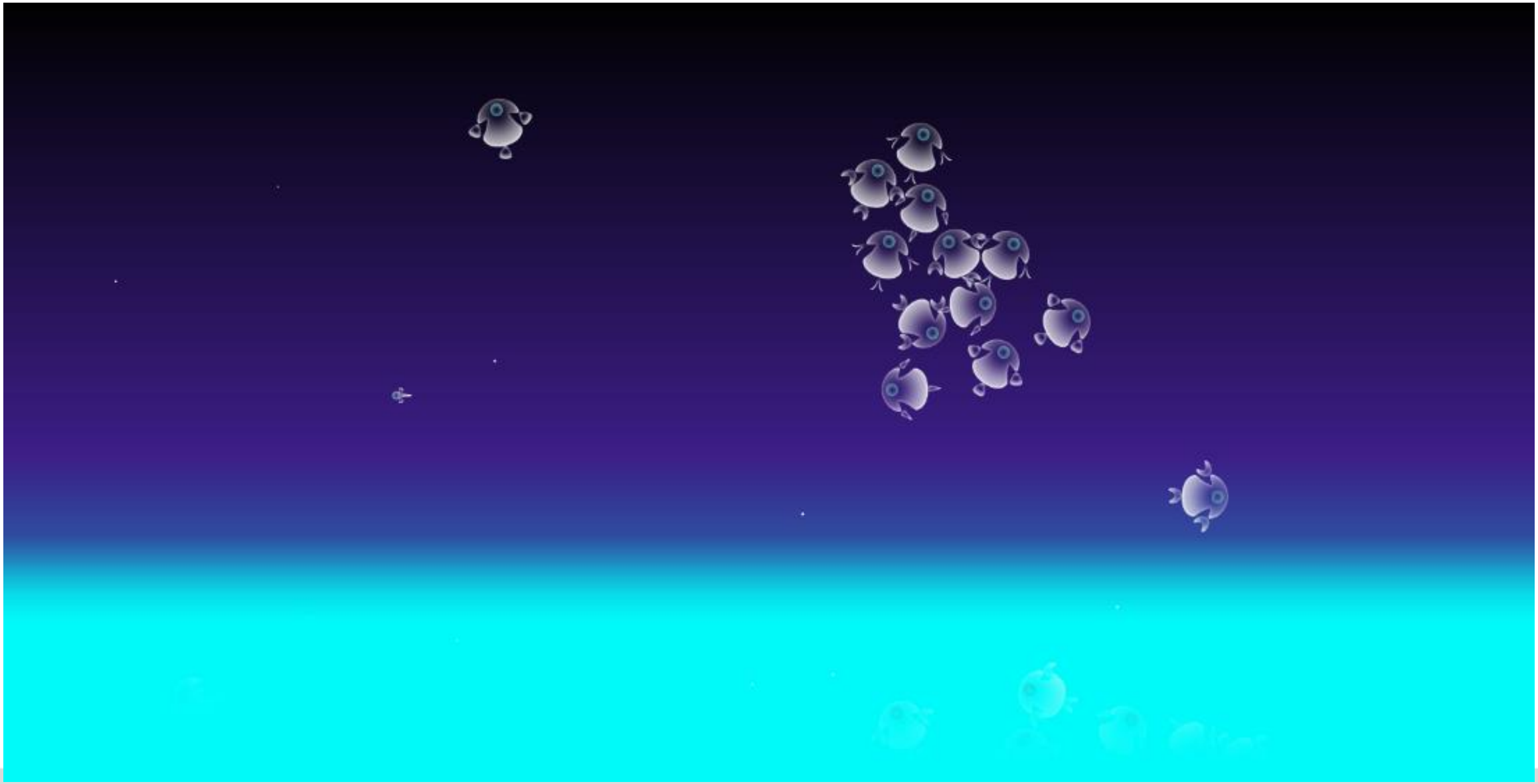
Description

In the report tool the learners can create the final report of their work. The learners can include the content of other tools, such as concept maps, hypotheses, questions, observations and data graphs.

As a teacher you can change the configuration of this tool. In the configuration menu (behind the gear icon) you can define the section titles of the report and give a short explanation to the learners about the meaning and expected content for each section.



Akvarij



Metoda “Obrnute učionice” (Flipped classroom)

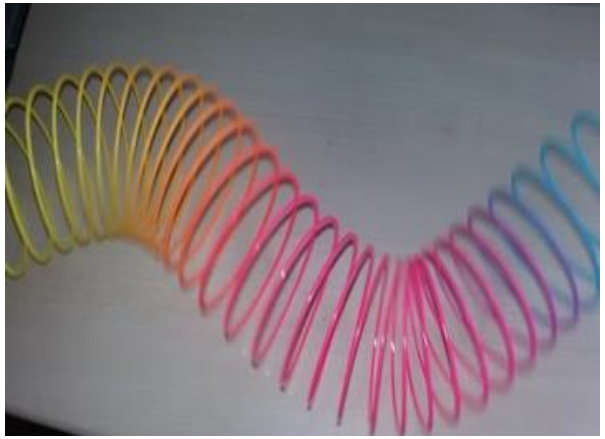
Primjer

Tema: Valovi Predmet: Fizika Dob učenika: 12.g.

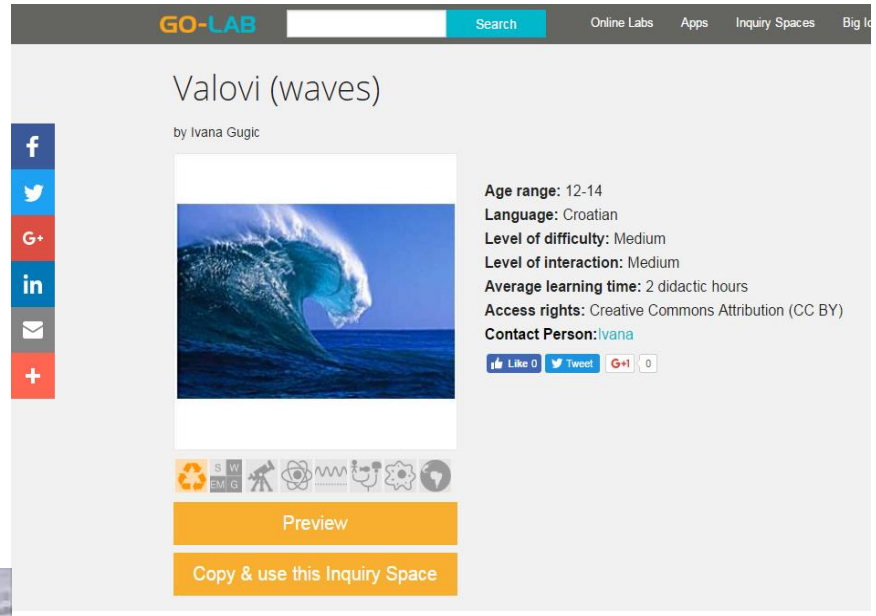
- Učenici unaprijed otkrivaju i pronalaze fizikalne činjenice, stvaraju određeno teorijsko predznanje, te stvaraju određene jednostavne pretpostavke i hipoteze o valovima. Dolaskom na nastavni sat učenici svoje pretpostavke i hipoteze provjeravaju primjenom istraživačke znanstvene metode kroz različite aktivnosti, jednostavne pokuse, a koje mogu osmisliti sami ili ih unaprijed osmišljava nastavnik.

Aktivnost 1. -učenički val

Aktivnost 2. - demonstracija vala uz pomoć opruge



Aktivnost 3. - istraživanje valova uz pomoć platoforme Graasp



Aktivnost 4. - "Slatki val"

Mišljenje učenika

- U razgovoru s učenicima pokazalo se da je ovakav način učenja i vježbanja kroz projektnu i istraživačku nastavu njima zanimljiviji i zabavniji, motiviraniji su za rad
- Uspješniji su i učenici koji nastavu pohađaju po posebnim nastavnim programima
- Introvertirani učenici pokazali su volju i trud za ostvarivanjem vlastitog cilja i shvatili koliko je važan timski rad
- Rezultati formativnog i sumativnog vrednovanja su se pokazali boljima

Zašto se uključiti u međunarodne projekte Go-Lab/Next- Lab ?

- Omogućuju drugačiji pristup nastavi
- Mogućnost sudjelovanja na radionicama, tečajevima (MOOC) predavanjima i ljetnim školama izvan RH (Belgija, Grčka, Poljska...)
- Suradnja s kolegama nastavnicima iz drugih zemalja Europe

nextlab

Hvala na pažnji! ☺