Croatian Informatics curriculum
Old tradition & New approaches

Lidija Kralj, development lead

Comprehensive curricular reform

Why?
- Content based subject programs
- Gymnasium programs from 1995
- Primary school programs from 2006
- No learning outcomes based curriculum
- No formative assessment
- No tradition of continuous curriculum improvement
- Curricular reform started in 2015 – school & university teachers together

Primary – 7 to 14 yr
Secondary 15 – 19 yr

Comprehensive curricular reform

- All subjects in Primary schools and Gymnasiums;
- Languages & Mathematics in Vocational schools
- Cross-curricular topics - in all schools and subjects
  - Personal and emotional development
  - Learning to learn
  - Use of ICT
  - Citizenship education
  - Entrepreneurship
  - Health
  - Sustainable development
- Implementation 2018 (Informatics) , 2019-2020 all subjects

Public call for expert workgroup (2015)

- 7 members
- Primary and Secondary school teachers, University teachers
- Analysing existent practice and Informatics curriculum in other countries
- Preparation of a vertically harmonized curriculum for all grades of primary and secondary school (12 year general education)
- Uniform approach for all subjects
- Completed in 2016, officially published in 2018.

Curriculum organization

- Domains
- Grades
- Learning outcomes
- 4 levels of achievement
- https://narodne-novine.nn.hr/clanci/sluzbeni/2018_03_22_436.html
- https://skolazazivot.hr/wp-content/uploads/2020/06/INF_kurikulum.pdf

KURIKULUM NASTAVNOGA PREDMETA

1 Opis predmeta

2 Odgojno-obrazovni ciljevi učenja i poučavanja

3 Domene/makrokoncepti u organizaciji predmeta

4 Odgojno-obrazovni ishodi po razredima i domenama

5 Povezanost s drugim odgojno-obrazovnim područjima

6 Učenje i poučavanje predmeta

7 Vrednovanje ishoda u predmetu
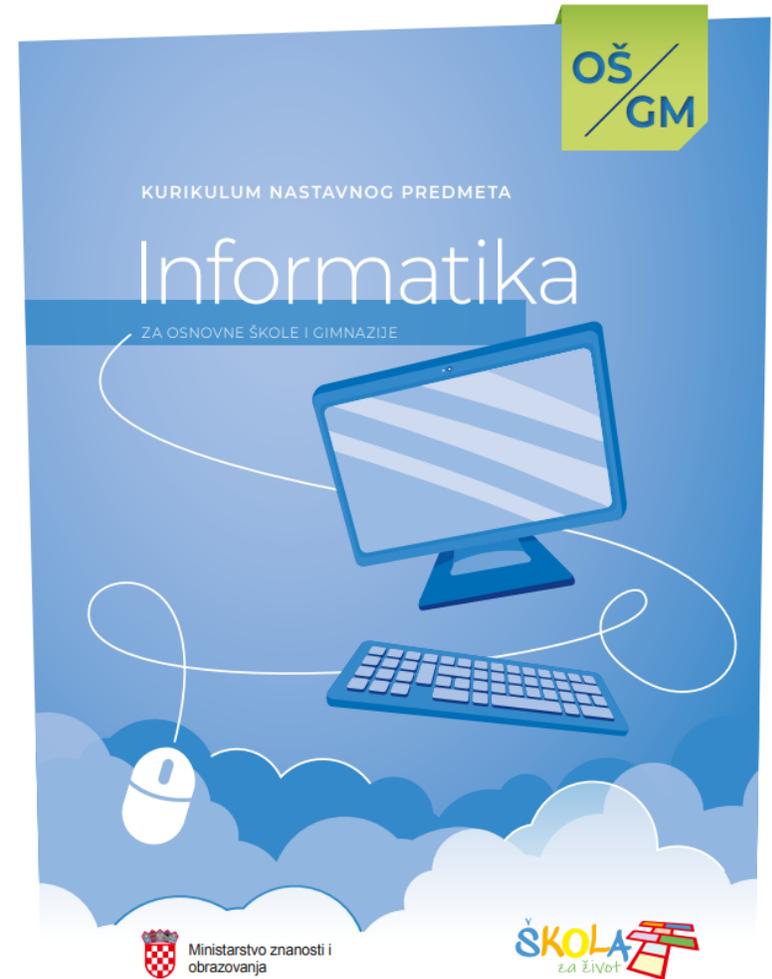
Learning aims

to become computer literate in order to be able to use digital technology independently, responsibly, efficiently, purposefully and appropriately, and to prepare for learning, living and working in a society that is changing very rapidly by the development of digital technologies

develop digital wisdom as the ability to select and apply the most appropriate technology depending on the task, area or problem to be solved

develop critical thinking, creativity and innovation using information and communication technology

Learning aims

develop computational thinking, problem-solving ability and programming skills

communicate and collaborate effectively and responsibly in the digital environment

understand and responsibly apply safety recommendations following legal guidelines when using digital technology in everyday life

Domains in Informatics curriculum

e-Society

Digital Literacy and Communication

Information and Digital Technology

Computational Thinking and Programming

A. Information and Digital Technology

- Search, retrieve and critically evaluate information from various sources and data collections
- Know the patterns of digital representation of different types of data such as numbers, text, sound, images and video
- Develop strategies for observing, describing, and explaining patterns and relationships among data
- Apply visualizations and simulations to show simplified computer operation models
- Know the basic concepts of computers and devices, data storage forms and features and methods of digital information transfer

Informacije
i digitalna
tehnologija

B. Computational Thinking and Programming

- Nurture a problem solving approach that is applicable to the computer
- Develop skills of logical reasoning, modeling, abstraction and problem solving
- Develop self-confidence, perseverance and precision in correcting mistakes, the ability to communicate and work together to achieve a certain goal
- Apply metacognitive skills to work on complex problems by splitting them into more simple problems
- Encourage students to develop computer programs that involve standard program development procedures, but also innovation, entrepreneurship and taking the initiative in designing and developing new models and products using computer technology

Računalno razmišljanje i programiranje

C. Digital Literacy and Communication

- Know the possibilities of current technology and computer programs
- Develop collaboration and communication skills in an online environment
- Take active roles in creating positive digital footprint
- Individually or in a team, select appropriate digital content and programs, create, edit, publish and present your digital content (*drawing, written document, presentation, video, web content....*)

D. e-Society

- Use the Internet responsibly, safely and efficiently
  (from following the news to using public services such as e-journals, e-citizens or e-health)
- Understand what personal information is and how to protect it
- Know how to protect yourself from fraud, threats and cyberbullying
- React to inappropriate behaviours
- Respect other people's privacy
- Know where to seek for help because of unwanted content or contacts

e-Društvo

Domains representations by education cycles

5. CIKLUS		
4. CIKLUS		
3. CIKLUS		
2. CIKLUS		
1. CIKLUS		

INFORMACIJE I DIGITALNA TEHNOLOGIJA
RAČUNALNO RAZMIŠLJANJE I PROGRAMIRANJE
DIGITALNA PISMENOST I KOMUNIKACIJA
E-DRUŠTVO

Information and Digital Technology

Computational Thinking and Programming

Digital Literacy and Communication

e-Society

Learning outcomes by grades and domains

- are clear and unambiguous statements of expectations from students in a particular domain in a particular year of learning the subject

- through years of learning form a logical whole

- 6 – 20 learning outcomes per grade

- In a grade learning outcomes are not listed chronologically and can be combined and achieved together

- Students are expected to achieve all learning outcomes, but of course not at the same level.

5TH GRADE	
DOMAIN	**OUTCOME**
Information and Digital Technology	After the fifth year of studying Computer Science in the domain of Information and Digital Technology, the student: A. 5. 1 finds and evaluates information A. 5. 2 explores the main components of the usual digital systems, determines basic functions and connections with others, explores how these systems can connect via network and exchange data A. 5. 3 analyses the way a computer stores all types of data.
Computational Thinking and Programming	After the fifth year of studying Computer Science in the domain of Computational Thinking and Programming, the student: B. 5. 1 uses program tools to create a program in which he uses input and output values and repetition B. 5. 2 creates an algorithm for solving a simple task, checks if the algorithm is correct, discovers and fixes errors.

Digital Literacy and Communication	After the fifth year of studying Computer Science in the domain of Digital Literacy and Communication, the student: C. 5. 1 adjusts user interface of an operating system to his needs, independently discovers and demonstrates additional capabilities of an operating system C. 5. 2 uses the capabilities of a system to store and organize files C. 5. 3 develops a plan to make a digital work, makes it, stores it in a folder with digital works (e-portfolio) and evaluates it C. 5. 4 uses multimedia programs for accomplishing more complex ideas in a communication or co-operative environment.
e-Society	After the fifth year of studying Computer Science in the domain of e-Society, the student: D. 5. 1 analyses ethical questions that arise from using computer technology D. 5. 2 arguments and estimates the importance of electronic waste disposal and explains the procedures of its disposal.

ISHOD	RAZRADA ISHODA	RAZINE USVOJENOSTI

OŠ INF D. 2. 3.

Nakon druge godine učenja predmeta informatika u domeni **e-društvo** učenik analizira neke opasnosti koje mogu nastupiti pri uporabi računala i interneta te pravilno na njih reagira.

Učenik prepoznaje moguću opasnost od nepoznate osobe u virtualnome svijetu, prepoznaje elektroničko nasilje. U nekim situacijama traži pomoći odrasle osobe (znati gdje može potražiti pomoć, razvijati atmosferu povjerenja i osnaživanja). Primjenjuje pozitivne obrasce ponašanja pri suočavanju s elektroničkim nasiljem. Analizira primjere elektroničkoga nasilja i zajednički pronalazi rješenja za njih. Odabrati i primijeniti zdrave navike ponašanja tijekom rada na računalu. Procjenjuje količinu vremena provedenoga u virtualnome i stvarnome svijetu. Prihvaća preporuke o količini vremena provedenoga za računalom.

ZADOVOLJAVAJUĆA
- Učenik uz pomoć učitelja nabraja neke opasnosti od nepoznate osobe u virtualnome svijetu. Prepoznaje zdrave navike ponašanja pri radu s računalom.

DOBRA
- Učenik prepoznaje elektroničko nasilje.
- U nekim situacijama traži pomoć odrasle osobe.
- Primjenjuje zdrave navike ponašanja tijekom rada na računalu.

VRLO DOBRA
- Primjenjuje pozitivne obrasce ponašanja pri suočavanju s elektroničkim nasiljem.

IZNIMNA
- Učenik objašnjava opasnosti koje mogu nastupiti pri uporabi računala i interneta i povezuje ih s opasnostima iz stvarnoga svijeta.
- Procjenjuje količinu vremena provedenoga u virtualnome svijetu.

PREPORUKE ZA OSTVARENJE ODGOJNO-OBRAZOVNIH ISHODA

Upoznati učenike s opasnostima koje im prijete na internetu i povezati ih s opasnostima iz stvarnoga svijeta. Razgovarati o pozitivnim obrascima ponašanja i kako ih primijeniti. Učenici u parovima razgovaraju o neprihvatljivu ponašanju među svojim vršnjacima. Osvješćuju da neka djeca na internetu znaju biti nasilna. Gledanje animiranih priča prilagođenih uzrastu djece, prepoznavanje elektroničkoga nasilja i razgovor o primjerima elektroničkoga nasilja, upoznavanje načina sprečavanja i prevencije takva nasilja te što učiniti ako su sami žrtve nasilja. Istaknuti da je i virtualan svijet stvaran svijet te da se moramo pristojno i odgovorno ponašati kad smo na internetu kako bismo zaštitili sebe, ali i druge. Povezati pravila pristojnoga ponašanja u razredu i na internetu. Razvijati atmosferu povjerenja i osnaživanja učenika tako da znaju da se mogu obratiti učiteljima ako im zatreba pomoć.

Izvoditi vježbe razgibavanja za računalom, izmjenjivanje sjedenja i drugih položaja. Pratiti duljinu vremena provedenoga pred ekranom (računalo, mobitel, tablet, televizor). Mogu se upotrijebiti obrazovni sadržaji iz kurikuluma *Pet za Net*, animirane priče te radna bilježnica Igraj se i uči online.

POVEZNICE

Može se povezati sa svim ishodima u domeni Digitalna pismenost i komunikacija.
Priroda i društvo: ponašanje u školi i odnosi među učenicima, kultura stanovanja, kulturne ustanove, zdravlje
Sat razrednog odjela: zdravstveni i građanski odgoj.

Learning outcome - D.2.3 (1)

2nd grade Primary school					
e-Society					
Outcome	**Elaboration of the outcome**	**Achievement levels**			
		Satisfying	**Good**	**Very good**	**Exceptional**
D. 2. 3 **AFTER THE SECOND YEAR OF LEARNING INFORMATICS IN THE DOMAIN OF E-SOCIETY, THE STUDENT ANALYSES DANGERS THAT CAN OCCUR WHEN USING COMPUTERS AND THE INTERNET AND PROPERLY REACTS TO THEM.**	The student recognises a possible danger from unknown person in the virtual world, recognises cyberbullying. In certain situation, the student asks for the help of an adult (knowing where to look for help, developing the atmosphere of trust and empowerment). Applies positive patterns of behaviour when facing cyberbullying. Analyses examples of cyberbullying and r finds solutions collaboratively. Choose and apply healthy habits of behaviour while working on a computer. Estimates the amount of time spent in the virtual and real world. Accepts recommendations about the amount of time spent on a computer.	The student names stranger dangers in the virtual world with the teacher's help. Recognises healthy habits of behaviour while working on a computer.	The student recognises cyberbullying. In certain situations, the student asks for the help of an adult. Applies healthy habits of behaviour while working on a computer.	Applies positive patterns of behaviour when facing cyberbullying.	The student explains the dangers that can occur while using computers or the internet and connects them to dangers in the real world. Estimates the amount of time spent in the virtual world.

Elaboration of the learning outcome D.2.3.

- The student recognises a possible danger from unknown person in the virtual world, recognises cyberbullying. In certain situation, the student asks for the help of an adult (knowing where to look for help, developing the atmosphere of trust and empowerment).

- Applies positive patterns of behaviour when facing cyberbullying.

- Analyses examples of cyberbullying and finds solutions collaboratively.

- Choose and apply healthy habits of behaviour while working on a computer. Estimates the amount of time spent in the virtual and real world.

- Accepts recommendations about the amount of time spent on a computer.

Achievement levels			
Satisfying	**Good**	**Very good**	**Exceptional**
The student, with the teacher's help, names some of the danger situations with unknown persons in the virtual world. Recognises healthy habits of working on a computer.	The student recognises cyberbullying. In certain situations, the student asks for the help of an adult. Applies healthy habits of working on a computer.	Applies positive patterns of behaviour when facing cyberbullying.	The student explains the dangers that can occur while using computers or the internet and connects them to dangers in the real world. Estimates the amount of time spent in the virtual world.

Recommendations for achieving learning outcomes

- Introduce the students to dangers they can face on the internet and connect them to dangers in the real world. Talk about positive behaviour patterns and how to apply them. The students talk about inappropriate behaviour among their peers in pairs. They report that some children can be violent on the internet. Watching animated stories adjusted to children's age, recognising cyberbullying and talking about the examples of cyberbullying, learning the ways to stop or prevent such bullying and what to do if they are the victims of bullying. Point out that the virtual world is also a real world and that we have to behave politely and responsibly when we are on the internet in order to protect ourselves and others. Link the rules of polite behaviour in class and on the internet. Develop an atmosphere of trust and empowerment for students so they know they can contact their teachers if they need help.

- Do stretching exercises while on a computer, changing the seat and other positions. Track the amount of time spent in front of the screen (computer, mobile phone, tablet, TV). Educational contents from the curriculum Pet za Net, animated stories and the workbook Igraj se i uči online can be used.

- Correlations:
  - It can correlate with all the outcomes in the domain of Digital Literacy and Communication.
  - Science and Social Studies: behaviour at school and relations between students, housing culture, cultural institutions, health
  - Health and civic education.

RAČUNALNO RAZMIŠLJANJE I PROGRAMIRANJE

ISHOD	RAZRADA ISHODA	RAZINE USVOJENOSTI

SŠ INF B. 1. 1.

Nakon prve godine učenja predmeta informatika u srednjoj školi u domeni **računalno razmišljanje i programiranje** učenik analizira problem, definira ulazne i izlazne vrijednosti te uočava korake za rješavanje problema.

Analizira problem, određuje vrstu i opseg ulaznih podataka, razmatra načine rješavanja problema. Uočava zasebne cjeline i rastavlja problem na manje dijelove. Prikazuje postupak rješavanja problema u koracima. Prepoznaje u svojemu algoritmu osnovne algoritamske strukture: slijed, grananje i ponavljanje. Diskutira ispravnost algoritma te ga po potrebi mijenja. Prepoznaje ograničenja algoritma.

ZADOVOLJAVAJUĆA
• Opisuje i analizira problem iz svakodnevnog života te u koracima prikazuje postupak njegova rješavanja

DOBRA
• U rješenju problema prepoznaje glavne algoritamske strukture: slijed, grananje i ponavljanje.

VRLO DOBRA
• Analizira svoje rješenje problema, provjerava ga različitim ulaznim vrijednostima te predviđa rezultat njegova izvođenja.

IZNIMNA
• Analizirajući rješenje problema uočava i ispravlja pogrešku u algoritmu, prepoznaje ograničenja algoritma.

PREPORUKE ZA OSTVARENJE ODGOJNO-OBRAZOVNIH ISHODA

Analiza i rješavanje problema: zadatci kao na natjecanju Dabar (engl. Bebras). Analiza i opisivanje što postojeći algoritam radi. Usporedba dvaju algoritama koji rješavaju isti problem. Procjena točnosti algoritma za različite ulazne vrijednosti. Smišljanje ulaznih vrijednosti za koje algoritam ne daje točno rješenje tj. ne radi.

Računalno razmišljanje nije nužno vezano uz programiranje te se može vježbati i na druge načine. Primjerice za postavljeni cilj u obradi teksta (dokument uređen na određeni način) može se napraviti algoritam koji će pravilnim korištenjem ugrađenih funkcija automatizirati veći broj operacija i skratiti vrijeme utrošeno na uređivanje dokumenta.

Learning outcome - B.1.1. SŠ

1st grade Secondary school					
Computational thinking and programming					
Outcome	**Elaboration of the outcome**	**Achievement levels**			
		Satisfying	**Good**	**Very good**	**Exceptional**
B. 1. 1 **AFTER THE FIRST YEAR OF LEARNING INFORMATICS IN SECONDARY SCHOOL IN THE DOMAIN OF COMPUTATIONAL THINKING AND PROGRAMMING, THE STUDENT ANALYSES A PROBLEM, DEFINES INPUT AND OUTPUT VALUES AND NOTES THE STEPS FOR SOLVING THE PROBLEM.**	Analyses the problem, determines the type and scope of input data, considers the ways of solving the problem. Notes separate units and splits the problem into smaller parts. Shows the process of solving the problem in steps. Recognises the basic algorithm structures in his algorithm: sequencing, branching and looping. Discusses the validity of the algorithm and adjusts it if necessary. Recognises the limits of the algorithm.	Describes and analyses an everyday life problem and presents the process of solving it in steps.	Recognises the main algorithm structures in the solution to the problem: sequencing, branching and looping.	Analyses his solution, verifies it with different input values and anticipates the result of its execution.	Detects and corrects errors in the algorithm by analysing the solution, recognises the limits of the algorithm.

Elaboration of the learning outcome B.1.1. SŠ

- Analyses the problem, determines the type and scope of input data, considers the ways of solving the problem.
- Notes separate units and splits the problem into smaller parts. Shows the process of solving the problem in steps.
- Recognises the basic algorithm structures in his algorithm: sequencing, branching and looping.
- Discusses the validity of the algorithm and adjusts it if necessary.
- Recognises the limits of the algorithm.

Achievement levels			
Satisfying	**Good**	**Very good**	**Exceptional**
Describes and analyses an everyday life problem and presents the process of solving it in steps.	Recognises the main algorithm structures in the solution to the problem: sequencing, branching and looping.	Analyses his solution, verifies it with different input values and anticipates the result of its execution.	Detects and corrects errors in the algorithm by analysing the solution, recognises the limits of the algorithm.

Recommendations for achieving learning outcomes

- Problem analyses and solving: tasks as in the *Bebras competition*
- Analysis and description of what the existing algorithm does. Comparison of two algorithms that solve the same problem.
- Evaluation of validity of the algorithm for different input values. Coming up with input values for which the algorithm does not give the correct solution, that is, does not work.
- Computational thinking can be practised in other ways too. For example, for the set objective in text processing (a document edited in a certain way), an algorithm can be created that will automate a larger number of operation and shorten the time spent on editing the document if the built-in functions are used properly.
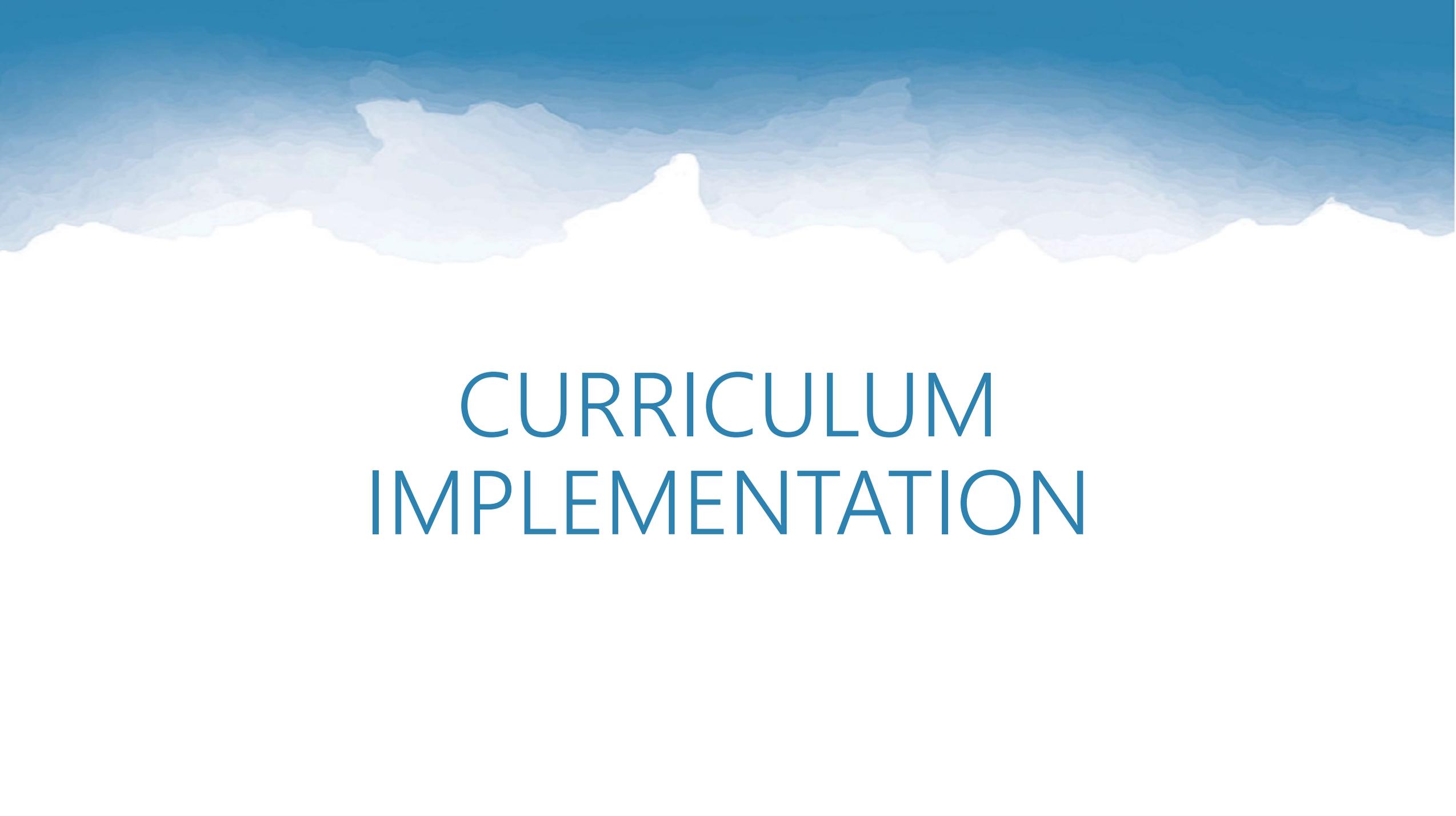
CURRICULUM IMPLEMENTATION

Committee for the implementation of new Informatics curriculum

- Ministry of Science and education, September 2017
- School and University teachers, representatives from the companies, NGOs
- Other stakeholders (digital skills, code week, digicomp and similar initiatives)
- Plan and preparation of the implementation – which activities and how to organize them

Novelty status of the subject Informatics

- Elective subject in lower grades (1. - 4.) - in 2020
- Obligatory subject in grades 5 and 6 – in 2018
- Elective subject in 7 and 8 grades primary school – in 2018
- Gymnasiums – new curriculum for all grades – in 2018
  - combination of obligatory and elective subject (4, 2+2, 1+3)
- Vocational schools –not included – ongoing reform 2020 …

Good teaching programming tradition and teacher
initial education (mostly mathematics & informatics)

Workgroup for the implementation

- 7 authors of the curriculum
- 4 primary school teachers
- 6 secondary schools teachers
- 2 university teachers of Informatics pedagogy (didactic, methodic)
- The first activities – January 2018

Professional development

- **from one time to continuum**
- blended model
- online and face to face
- continuous online training
- counselling visits
- regional f2f meetings

Scaling up and empowering

International team

Education and support for Mentor team

Training and resources creation:

Learning outcomes

Problem solving

Learning to learn

Coaching

Mentor team

Education of teachers, councillors and future mentors

Learning content creation:

- Virtual classrooms
- Counselling visits
- f2f trainings
- Parents meetings

Implementation

Informatika - ukupni broj polaznika

List of activities

- Virtual classroom (January 2018 – July 2020)
- Presentation on national meetings and conferences
- Regional programming trainings in 2018
- F2F Trainings on county level (September 2018., June & September 2019.)
- Adjustment of students competitions: programming, digital competencies, general informatics (2018./19)
- HSIN workshops (April 2019)
- Methodical guidelines for 1., 5., 6. primary grades & 1st secondary

VIRTUAL CLASSROOM FOR INFORMATICS TEACHERS
January 2018 – July 2020

Virtual classroom concept

- Environment for learning, communication and collaboration
- Continuous professional development
- Support network
- Education, sharing and continuous support
- Learning community - all participants are also mentors / experts
- Changing the current way of professional development

Virtual classrooms

- Continuous education in a 2 to 6 week rhythm
- 4 - 10 hours of active engagement weekly
- Mandatory and non-mandatory activities with deadlines
- Different teaching and assessment methods
- Recording of progress and involvement
- e-Portfolio of Professional Development
- Certificates of participation with learning outcomes
- Establishing sharing and support network; community of practice

Changes in teaching and assessment methods

- Discussions in the forum
- Examples of good practice - sharing activities & ideas
- Respecting deadlines
- Tasks in various forms (e-portfolio, text, images, multimedia, interactive content)
- Automatic assessment and feedback
- Mentor feedback
- Self assessment
- Peer assessment

Virtual classrooms – Moodle platform
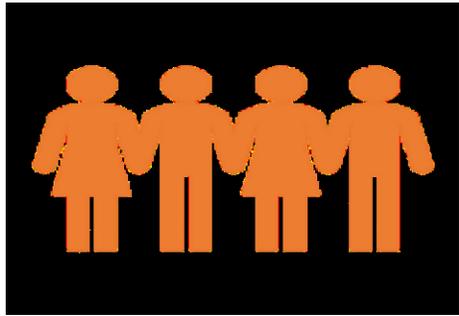
Environment for learning, communication and collaboration
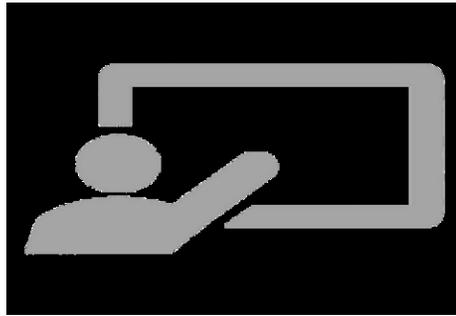
Quick access to the new and relevant information
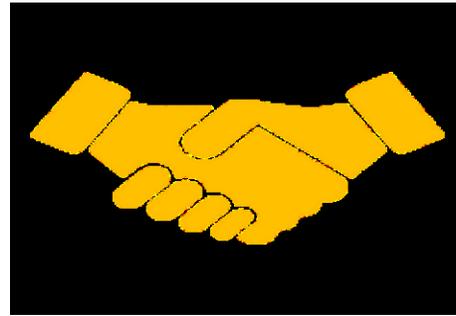
Continuous support
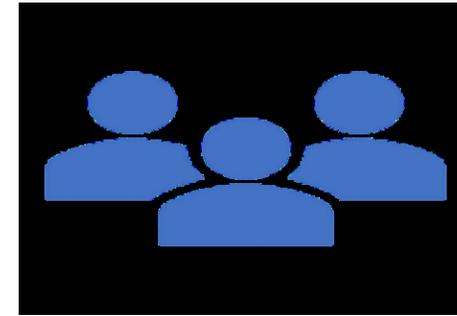
Learning community – participants are also experts & mentors
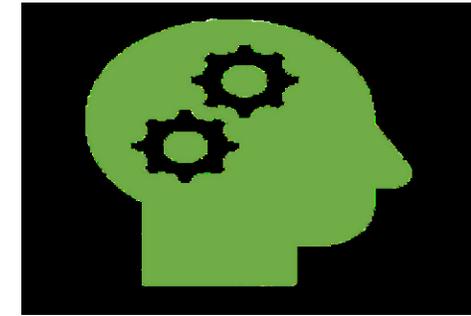
Sharing community – ideas, activities, assessment methods, resources

Why Moodle: AAI@EduHr; Technical support CARNET, Free national level; Sustainability

Moja naslovnica > Moji e-kolegiji > Ostale obrazovne ustanove > mzo > Informatika-CKR

⚙ ▾

ℹ Kontakti   ▭◂

Forum Pitanja i dogovori - pitanja vezana za ovaj tečaj

helpdesk@carnet.hr - pitanja vezana za sustav EMA i potvrde

loomen@carnet.hr - tehničke poteškoće s Loomen-om

🔖 Sekcije   ▭◂

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Prikaži trenutačnu temu

💬 Pretraži forume   ▭◂

Vaš napredak ⓘ

Informatika - pripreme za uvođenje novog kurikuluma

Tijekom školske godine 2018./19. koristit ćemo ovu virtualnu učionicu za učenje o novim temama, međusobno povezivanje i umrežavanje te dijeljenje primjera dobre prakse.

Veselimo se zajedničkom učenju i vašim izvrsnim primjerima.

Osnovne informacije o ovoj edukaciji dostupne su na poveznici
Virtualna učionica I i Virtualna učionica II

💬 Obavijesti

💬 Najave događanja

💬 Pitanja i dogovori

   Ako Vaše pitanje nije vezano za teme na drugim forumima, možete ga postaviti ovdje. Prije otvaranje nove rasprave, provjerite je li već pokrenuta rasprava na istu temu.

💬 Pripreme za novu školsku godinu

ℹ Info kutak   ▭◂

Odluka o donošenju kurikuluma za nastavni predmet Informatike za OŠ i gimnazije u RH

MZO webinari / Snimke održanih webinara / Prezentacije s prethodnih webinara

Upute za sudionike webinara / Sustav EMA

Pravila poželjnog ponašanja na forumu

Mapa s lokacijama sudionika tečaja

Otvoreni Moodle tečaj

Slike u tečaju, kojima se ne navodi izvor, označene su CC0 licencom

ℹ Metodički priručnici   ▭◂

Virtual classrooms topics (part)

Getting to know each other
Professional development

Introduction to the curricular concept
Curriculum Domains
Learning outcomes
Planning , Assessment

21ST CENTURY SKILLS
Problem solving
Learning to learn
Learning outcomes
Coaching

CURRICULAR DOCUMENTS
Assessment
Gifted students
Students with special needs
Cross-curricular topics

Virtual classrooms topics

- e-Society
- Information and Digital Technology
- Computational Thinking and Programming
- Digital Literacy and Communication
- Learning outcomes elaboration
- Planning of implementation curriculum
- Digital tools Faire
- Assesment
- Bebras
- Hour of Code, EU Code Week
- Safer Internet Day

118 virtual classrooms

39 760 participants

637 topics

172 975 badges earned

Biologija OŠ I	Katolički vjeronauk OŠ II	Razredna nastava I.
Biologija SŠ I	Katolički vjeronauk SŠ	Razredna nastava II
Engleski jezik OŠ I	Kemija OŠ I	Razredna nastava III
Engleski jezik OŠ II	Kemija SŠ I	Razredna nastava IV
Engleski jezik SŠ I	Latinski jezik	Razredna nastava IX.
Engleski jezik SŠ II	Likovna kultura	Razredna nastava V
Etika I	Likovna umjetnost	Razredna nastava VI
Fizika OŠ I	Matematika OŠ I	Razredna nastava VII
Fizika SŠ I	Matematika OŠ II	Razredna nastava VIII
Francuski jezik I	Matematika SŠ I	Razredna nastava X
Geografija OŠ I	Matematika SŠ II	Razredna nastava XI
Geografija SŠ I	Njemački jezik OŠ	
Glazbena kultura i Glazbena umjetnost	Njemački jezik u srednjim školama	
Grčki jezik	Povijest OŠ	
Hrvatski jezik OŠ I	Povijest SŠ	Talijanski jezik I
Hrvatski jezik OŠ II	Pravoslavni vjeronauk	Talijanski jezik-Materinji jezik = Lingua italiana-Lingua mat...
Hrvatski jezik SŠ I	Priroda	Tehnička kultura
Hrvatski jezik SŠ II	Ravnatelji osnovnih škola	TZK-OŠ
Islamski vjeronauk I	Ravnatelji srednjih škola	TZK-SŠ
Katolički vjeronauk OŠ	Razredna nastava = Insegnamento di classe	
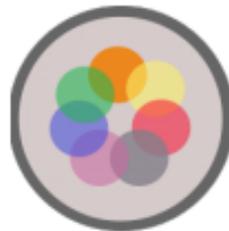
Badges
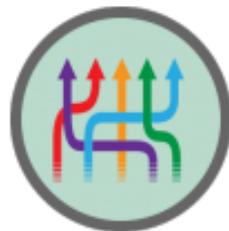
METHODICAL GUIDELINES

Teachers handbooks – methodical guidelines for curriculum implementation

- How to prepare activity and content around learning outcome
- How to connect learning outcomes from subjects and cross-curricular topics
- How to evaluate achievement of learning outcomes
- Assessment methods as learning and for learning
- Peer assessment, or self-assessment
- In a digital format so that teachers can change it yourself, complement it, and collaborate to create it
- Ideas but not recipes

Methodical guidelines

- Collaboration with colleagues in curriculum planning and implementation

- In digital form so that teachers can change and supplement it themselves and create it collaboratively

- Partners in the development: members of the working groups that prepared the curricula, school staff in the experimental program and all teachers, professors, associates and principals

- Collaborative creation and shared ownership

OneNote Online

Edukacije ▶ 2019-MP - Informatika - Prvi razred - OS   2019-MP - Informatika - Prvi razred - OS   📖 Immersive Reader   ✏ Open in OneNote

2019-MP - Informatika - Prvi razred - OS   🔍

Informatika-metodički...	Prijedlog sadržaja i aktivno...
Daroviti učenici	Pronađi rješenje
Učenici s teškoćama	Korak po korak
Projektno planiranje	Provjeri rješenje
Dodatni izvori i ideje z...	**Mali svemirac**
⌄ Razrada	Tražimo uzorke, rješava...
Prijedlog izvedbenih...	Vrednovanje
1. Početak ne mora ...	
2. Internet - mjesto ...	
3. Pronađi rješenje	
4. Izrazimo se crtežo...	
5. Računalo i zdravlje	

Crtanje svemirca prema uputama (učenici se intuitivno upoznaju s algoritmom ili uputom (uku D. 2. 4.

Samovrednovanje/samoprocjena - Na poticaj i uz pomoć učitelja procjenjuje je li uspješno riješio zadatak ili nauč

Za početak svatko će nacrtati svemirca, ali onako kako im učitelj/ica kaže. Bitno je da dobro slušaju učitelja/icu i on/a kaže. Važno je da dobro slušaju jer neće dobiti dodatne upute.

Učitelj/ica daje upute:

- nacrtaj glavu
- dodaj uši i oči
- nacrtaj tijelo
- nacrtaj ruke
- nacrtaj noge

Učenici pokazuju jedan drugome i učitelju/ici što su nacrtali. Bitno je u ovom dijelu ustanoviti da su svi crteži jako nalikuju onome što je učitelj/ica zamislio/la (pokazuje svoju varijantu učenicima npr. kao na slici).
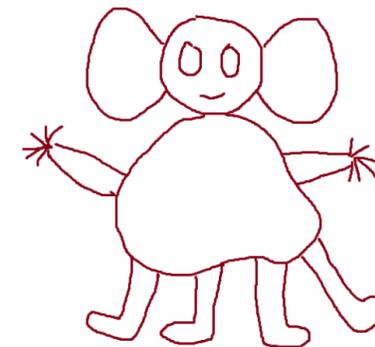
Postavlja pitanje zašto su svi nacrtali drugačije, zašto njihovi svemirci ne nalikuju njegovom/njenom. Ovdje bi uč da su upute bile nedovoljno precizne.

- Pojam pravokutnika, kvadrata te ostalih pravilnih geometrijskih likova i veličina kuta (matematika)

Što će učenici raditi

2 sata

ISHOD:

Učenici će

- primjenom naredbi grafičkog modula za crtanje stvarati računalna rješenja kojima se crtaju zadani crteži.
- analizirati vlastito računalno rješenje te ga prema potrebi korigirati.

U vizualnom okruženju za programiranje učenici će:

slijedeći vodič za kornjačinu grafiku crtati geometrijske likove
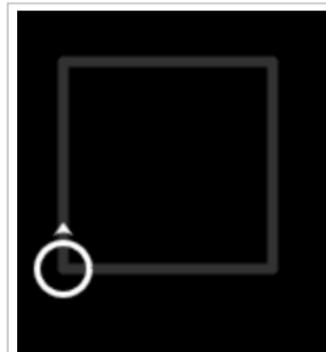
move forward by 100

turn left by ↺ 90°

Korišteni isječak zaslona: 20.12.2018. 10:32

Korišteni isječak zaslona: 20.12.2018. 10:32

Funding and support

1. State Budget
2. European Social Fund
   - I. experimental programme, 3 years,
     - training, equipment, methodical guidelines & learning resources, textbooks, for 74 schools
   - II. frontal implementation, 4 years,
     - scaling up, sustainabiliy
     - training, equipment, methodical guidelines & learning resources, for 1311 schools
3. European Commission Structural Reform Support Service – SRSS 1-3
   - Learning outcomes and assessment, Problem solving
   - School management development, Teaching of generic competences and cross-curicular topics
   - Efficient cooperation and collaboration, School leadership

Equipment – Government & EU funded projects

- 2018 - 2020
  - 53 000 notebooks for teachers
  - 250 000 tablets for students (1:1 grades 5-8; 1:4 grades 1-4)
  - 50 000 notebooks for school labs
  - Mobile device management established nationally for student devices
  - Equipment for teaching Informatics in primary grades
  - Financial support to the schools for buying equipment ≈3,5 mil €

From 0 to 100% - March 2020

- Quantum leap into 22nd century
- All schools involved in comprehensive reform within 2 years
- Move to online from one county - Istria on Monday, to all the other regions on Wednesday of the same week, BUT
- **All schools transformed for distance learning in 1 week**

March 2020

Lucky break?

Virtual classroom for all principals led by MoE

Virtual classrooms for subject teachers led by MoE mentors

Sharing information – webpage MoE

Sharing information – webpage School for life

CARNET webpage on online education (tools, tips, instructions)

Helpdesk - CARNET

Helpdesk - MoE

All Telecommunication companies provided free broadband and SIM cards to all primary school students and students from lower-income families

Publishers and owners of edu apps provided free access to learning resources

Dabar – Bebras (Beaver)

- Computational thinking challenge available to all students and teachers (2020 = 36 491 students)

MikroDabar (1. i 2. razred OŠ)

MiliDabar (3. i 4. razred OŠ)

KiloDabar (5. i 6. razred OŠ)

MegaDabar (7. i 8. razred

GigaDabar (SŠ)

Ukupan broj učenica i učenika

36491

24769

22887

15247

5927

40000
35000
30000
25000
20000
15000
10000
5000
0

2016.   2017.   2018.   2019.   2020.
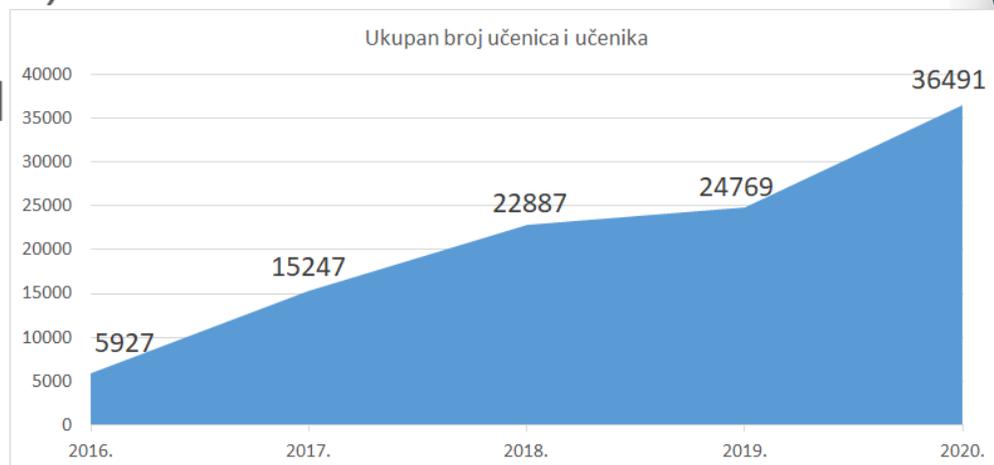
How to be ready for changes in education
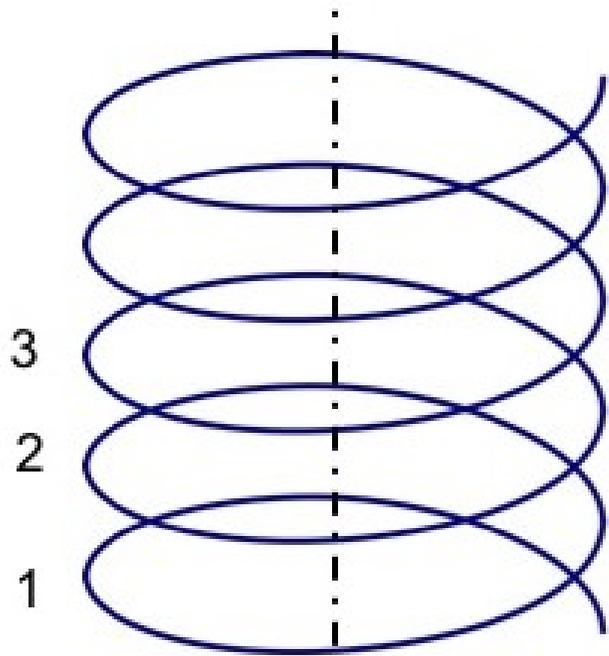
- Lean and agile management
- Continuous improvements - transferring knowledge from each day/activity to another one
- Fast learning and even faster knowledge sharing
- "Never-ending story" - changes and innovations in schools must be continuous

Thank you
Hvala

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