



XIX. MEDNARODNA KONFERENCA

EKOLOGIJA ZA BOLJŠI JUTRI

ZBORNİK RECENZIRANIH POVZETKOV

RIS DVOREC RAKIČAN

Od 18. 3. do 22. 3. 2024, Rakičan

CIP - Kataložni zapis o publikaciji
Univerzitetna knjižnica Maribor

373.2/.5.015.31:502/504(082)(0.034.2)

MEDNARODNA konferenca "Ekologija za boljši jutri" (19 ; 2024 ; Rakičan)

XIX. mednarodna konferenca "Ekologija za boljši jutri" [Elektronski vir] : zbornik:
Ekologija za boljši jutri : 18. 3. 2024 - 22. 3. 2024, Rakičan / [urednica Tadeja Horvat]. - E-
zbornik. - Rakičan : RIS Dvorec, 2024

Način dostopa (URL): [https://www.ris-
dr.si/go/575/3316/XIX. mednarodna konferenca EKOLOGIJA ZA BOLJSI JUTRI od 18
. 03. do 22. 03. 2024](https://www.ris-dr.si/go/575/3316/XIX._mednarodna_konferenca_EKOLOGIJA_ZA_BOLJSI_JUTRI_od_18._03._do_22._03._2024)

ISBN 978-961-7130-16-4

COBISS.SI-ID 189282051

KOLOFON

XIX. MEDNARODNA KONFERENCA »EKOLOGIJA ZA BOLJŠI JUTRI«

ZBORNİK RECENZIRANIH POVZETKOV: EKOLOGIJA ZA BOLJŠI JUTRI

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Tehnična obdelava:

- Tadeja Horvat

Oblikovanje naslovnice:

- Tadeja Horvat

Naklada (e-zbornik) – objava na:

<https://www.ris->

[dr.si/go/575/3316/XIX. mednarodna konferenca EKOLOGIJA ZA BOLJSI JUTRI od 18. 03. do 22. 03. 2024 \(pdf format\)](https://www.ris-dr.si/go/575/3316/XIX_mednarodna_konferenca_EKOLOGIJA_ZA_BOLJSI_JUTRI_od_18_03_do_22_03_2024.pdf)

Založnik:

RIS Dvorec Rakičan

Računalniški prelom:

Robert Kološa s.p.

Leto: 2024

Kraj izida: Lendavska ulica 28, Rakičan, 9000 Murska Sobota

KAZALO

Doris Barat	1
ALI LAHKO ZAUPAMO OZNAKAM NA EMBALAŽI NARAVNE IN EKOLOŠKE KOZMETIKE?	1
CAN WE TRUST THE LABELS ON THE PACKAGING OF NATURAL AND ORGANIC COSMETICS?	1
Anja Bizjak	2
RAZVIJANJE ČUTNIH SISTEMOV Z ODPADNIM MATERIALOM V PRVEM RAZREDU OSNOVNE ŠOLE	2
DEVELOPING SENSORY SYSTEMS WITH WASTE MATERIAL IN THE FIRST GRADE OF PRIMARY SCHOOL	2
Jurij Bizjak	3
VKLJUČEVANJE SPREHODA V PREDMET VAROVANJE OKOLJA Z OSNOVAMI TRAJNOSTNEGA RAZVOJA	3
INCORPORATING WALKS INTO THE SUBJECT OF ENVIRONMENTAL CONSERVATION WITH BASICS OF SUSTAINABLE DEVELOPMENT	3
Boža Boža	4
EKO DEJAVNOSTI IN OKOLJSKA VZGOJA NA NAŠI ŠOLI	4
ECO ACTIVITIES AND ENVIRONMENTAL EDUCATION AT OR SCHOOL	4
Nataša Bohin	5
USTVARJAJ Z MANO IZ ODPADNEGA MATERIALA	5
TITLE: CREATE WITH ME FROM RECYCLED MATERIALS	5
Darinka Bosnar	6
RAČUNALNIŠKO VREDNOTENJE REZULTATOV BARVANJA OVČJE VOLNE S POSUŠENIMI LISTI NAVADNEGA OREHA	6
COMPUTER EVALUATION OF THE RESULTS OF DYEING SHEEP WOOL WITH DRIED WALNUT LEAVES	6
Mateja Brežnik	7
EKOMULCI NA POHODU	7
ECOBRAVS ON THE HIKE	7
Živa Brumec Zadravec	8
EKOLOŠKA OZAVEŠČENOST DIJAKOV V PROGRAMIH SSI NA TEHNIŠKEM ŠOLSLEM CENTRU MARIBOR	8
ECOLOGICAL AWARENESS OF STUDENTS OF TECHNICAL EDUCATION PROGRAMS AT TECHNICAL SCHOOL CENTER MARIBOR	8
Irena Čermelj	9
CICI EKOLOGIJA VSAK DAN	9

CICI ECOLOGY EVERY DAY	9
Mira Debeljak	10
SKRB ZA OKOLJE JE SKRB ZA ŽIVLJENJE	10
CARE FOR THE ENVIRONMENT IS CARE FOR LIFE	10
Žiga Duh.....	11
RAZVIJANJE KOMUNIKACIJSKIH SPRETNOSTI PRI URESNIČEVANJU EKOLOŠKIH CILJEV NA RAZREDNI STOPNJI OSNOVNE ŠOLE	11
DEVELOPING COMMUNICATION SKILLS TO ACHIEVE ENVIRONMENTAL GOALS IN PRIMARY SCHOOL	11
Andreja Džakušič	12
LIKOVNO USTVARJANJE IN OBLIKOVANJE OKOLJEVARSTVENIH PLAKATOV KOT INOVATIVNO ORODJE ZA SPODBUJANJE OKOLJSKE OZAVEŠČENOSTI, PRIMER DOBRE PRAKSE V VZGOJNO- IZOBRAŽEVALNIH PROGRAMIH	12
ARTISTIC CREATION AND DESIGN OF ECOLOGICAL POSTERS AS AN INNOVATIVE TOOL FOR PROMOTING ENVIRONMENTALISM AWARENESS, AN EXAMPLE OF GOOD PRACTICE IN EDUCATIONAL PROGRAMS	12
Julija Fras	14
POMEN ČISTE VODE ZA ŽIVLJENJE IN DOBRO POČUTJE	14
THE IMPORTANCE OF CLEAN WATER FOR LIFE AND WELL- BEING.....	14
Katja Gobec	15
PRIMERJALNA ANALIZA KAKOVOSTI PITNIH VOD IZ VODOVODA, VODNIH ZAJETIJ IN IZVIROV	15
COMPARATIVE ANALYSIS OF THE QUALITY OF DRINKING WATER FROM WATER SUPPLY, WATER RESERVOIRS AND SPRINGS	15
Mihael Gojkošek.....	16
EKOLOŠKI VIDIK OCENJEVANJA – PRIMERJAVA KLASIČNEGA IN DIGITALNEGA NAČINA PREVERJANJA ZNANJA	16
THE ECOLOGICAL ASPECT OF EVALUATION – COMPARISON OF TRADITIONAL AND DIGITAL ASSESSMENT METHODS.....	16
Boštjan Golob	17
VKLJUČEVANJE EKOLOŠKIH VSEBIN PRI POUČEVANJU MEHANSKE OBDELAVE IN AVTOMATIZACIJE V TEHNIŠKEM ŠOLSLEM CENTRU MARIBOR	17
INCLUSION OF ECOLOGICAL CONTENT IN THE TEACHING OF MECHANICAL PROCESSING AND AUTOMATION AT THE MARIBOR TECHNICAL SCHOOL CENTER	17
Irena Gorenjak	18
NASLOV PRISPEVKA: ZAKAJ SO DREVESA TAKO POMEMBNA?	18

TITLE: WHY ARE TREES SO IMPORTANT?	18
Tina Gorenšek	19
CILJI TRAJNOSTNEGA RAZVOJA KOT NEPOZABNO DOŽIVETJE	19
THE GOALS OF SUSTAINABLE DEVELOPMENT AS AN UNFORGETTABLE EXPERIENCE	19
Kristina Grbec	20
POUČEVANJE KAOSA PRI POUKU MATEMATIKE V KONTEKSTU OBRAVANVE EKOLOŠKIH PROBLEMOV	20
TEACHING CHAOS IN MATH LESSONS IN CONECTION WITH ECOLOGY RELATED PROBLEMS	20
Magda Guček	21
KAKOVOST PIVA VARJENEGA Z DODATKOM ODVEČNEGA KRUHA	21
THE QUALITY OF BEER BREWED WITH THE ADDITION OF EXCESS BREAD	21
Veronika Hovnik	22
OZAVEŠČANJE POMENA LOČEVANJA ODPADKOV S PODPORO UČNIH NAČRTOV	22
PROMOTING THE SIGNIFICANCE OF WASTE SEPARATION THROUGH THE SUPPORT OF EDUCATIONAL CURRICULA	22
Marta Hrovatin	23
PREIZKUSIMO SE V KROŽNEM GOSPODARSTVU	23
LET'S TEST OURSELVES IN THE CIRCULAR ECONOMY	23
Simona Jazbec Jurkošek	24
RAST PREBIVALSTVA, VREME IN GOSPODARNA RABA VODE PRI POUKU MATEMATIKE	24
POPULATION GROWTH, WEATHER AND EFFICIENT USE OF WATER IN MATHEMATICS LESSONS	24
Alenka Jeromel	25
OKOLJU PRIJAZNO PRI POUKU ANGLEŠČINE	25
ENVIRONMENTALLY FRIENDLY IN ENGLISH CLASSES	25
Dajana Jovanović	26
Z MAJHNIMI KORAKI DO OHRANJANJA PLANETA	26
WE ARE PRESERVING THE PLANET WITH SMALL STEPS	26
Dragica Jurkušek	27
»ČUFARJEVI ZELENİ KORAKI« ZA VEČJO TRAJNOSTNO MOBILNOST OTROK IN ZAPOSLENIH	27
»ČUFAR'S GREEN STEPS« FOR GREATER SUSTAINABLE MOBILITY OF CHILDREN AND EMPLOYEE	27

Franc Jus	28
AVTOMATIZACIJA 3D KOORDINATNEGA MERILNEGA STROJA	28
AUTOMATION OF 3D COORDINATE MEASURING MACHINE	28
Ana Kavčič Karničar	29
SODELOVALNO POUČEVANJE ZA ŽIVLJENJE NA EKOLOŠKEM POSESTVU	29
TEAM TEACHING FOR LIFE ON ORGANIC FARM	29
Laura Kerin Jevtič	30
GLOBALNO DRŽAVLJANSTVO PRI POUKU ANGLEŠČINE	30
GLOBAL CITIZENSHIP IN ENGLISH LANGUAGE TEACHING	30
Romana Klemen	31
VPLIV PODNEBNIH SPREMEMB NA GOSPODARSTVO	31
THE IMPACT OF CLIMATE CHANGE ON THE ECONOMY	31
Eva Klemenčič	32
UČITELJEVA VLOGA PRI PREPREČEVANJU EKOANKSIOZNOSTI PRI UČENCIH	32
THE TEACHER'S ROLE IN PREVENTING ECO-ANXIETY IN STUDENTS	32
Helena Knez	33
SPOZNAVANJE EKOLOŠKIH VSEBIN NA PODRUŽNIČNI OSNOVNI ŠOLI SKOZI PROJEKTNE NALOGE	33
EXPLORING ECOLOGICAL TOPICS AT THE BRANCH PRIMARY SCHOOL THROUGH PROJECT TASKS	33
Simona Kocbek	34
TRETJEŠOLCI NE ZAVRŽEJO, AMPAK PONOVO UPORABIJO	34
THIRD-GRADERS DO NOT THROW AWAY, BUT REUSE	34
Marko Kubale	35
RAZVIJANJE PODJETNIŠTVA PREKO USTANOVITVE UČNEGA PODJETJA ECOVENTURES, D. O. O., IN PROMOCIJA EKOTURIZMA V DOLGI GORI ... 35	
PROMOTING ENTREPRENEURSHIP THROUGH THE ESTABLISHMENT OF THE TRAINING COMPANY ECOVENTURES, LTD., AND ECOTOURISM PROMOTION IN DOLGA GORA	35
Barbara Kunc Rašetarevič	36
POMEMBNOST VKLJUČEVANJA EKO VSEBIN V VZGOJNO- IZOBRAŽEVALNE PROGRAME	36
IMPORTANCE OF INTEGRATING ECO CONTENT INTO EDUCATIONAL PROGRAMMES	36
Primož Kurent	37

DOPRINOS STROKE IN ŠTUDENTOV ZA ZELENI PREHOD BOLJŠEGA JUTRI	37
PROFESSIONAL AND STUDENT CONTRIBUTION TO THE GREEN TRANSITION FOR A BETTER TOMORROW	37
Nataša Kutoš Sečko	38
ODPADKI, LOČEVANJE ODPADKOV, RECIKLIRANJE	38
WASTE, SORTING WASTE, RECYCLING	38
Joca Lipuš	39
ODKRIVANJE ČUDES NOJEVEGA JAJCA Z EKSPERIMENTI	39
DISCOVERING THE WONDERS OF AN OSTRICH EGG THROUGH EXPERIMENTS	39
Vesna Markelj	40
OKOLJSKI MIGRANTI: PLANETARNA IZREDNA SITUACIJA	40
ENVIRONMENTAL MIGRANTS: A PLANETARY EMERGENCY	40
Dario Molnar	41
PORABA ELEKTRIČNIH NAPRAV V STANJU PRIPRAVLJENOSTI	41
STANDBY POWER CONSUMPTION OF DEVICES	41
Klaudija Pahor	42
DEJAVNOSTI ZA BOLJŠI JUTRI	42
ACTIVITIES FOR A BETTER TOMORROW	42
Milena Petauer	43
POMEN PRSTI KOT UČNE SNOVI V ŠOLSKI GEOGRAFIJI IN NJENO OZAVEŠČANJE JAVNOSTI	43
THE IMPORTANCE OF SOIL AS A SUBJECT MATTER IN SCHOOL GEOGRAPHY AND ITS RAISING AWARENESS	43
Bojana Posavec Vaupotič	44
TRAJNOSTNO GOSPODARSTVO V OČEH DIJAKOV	44
SUSTAINABLE ECONOMY THROUGH THE EYES OF STUDENTS	44
Vesna Potočnik	45
UČNI PRIPOMOČKI IZ RECIKLIRANIH MATERIALOV - OD LINEARNEGA H KROŽNEMU GOSPODARSTVU	45
RECYCLED LEARNING AIDS - FROM LINEAR TO CIRCULAR ECONOMY ..	45
Nataša Prašnikar	46
DIJAKI SREDNJE ŠOLE DOMŽALE: ANIMIRANI FILM IN VAROVANJE GOZDOV	46
STUDENTS OF SREDNJA ŠOLA DOMŽALE: ANIMATED FILM AND FOREST PROTECTION	46

Tatjana Pšeničnik	47
BERI EKO, BODI EKO	47
READ ECO, BE ECO	47
Eva Rakić	48
MEDNARODNO SKUPNI VODNI VIRI KOT VIR KONFLIKTOV	48
INTERNATIONALLY SHARED WATER RESOURCES AS A SOURCE OF CONFLICT	48
Dragica Repanšek	49
EKOLOGIJA KOT SPOZNAVNI PROCES	49
ECOLOGY AS A COGNITIVE PROCESS	49
Sandi Rihtarič	50
SKOZI OBŠOLSKE DEJAVNOSTI K TRAJNOSTNEMU PRISTOPU	50
THROUGH EXTRACURRICULAR ACTIVITIES TO A SUSTAINABLE APPROACH	50
Barbara Rozman	51
“ HITRA MODA IN ZAVRŽENA OBLAČILA, VKLJUČEVANJE TEME V POUK GEOGRAFIJE «.....	51
TITLE: “FAST FASHION AND DISCARDED CLOTHING IN GEOGRAPHY LESSON”	51
Janja Rožanc	52
VZGOJA MLADIH EKOLOŠKIH BOJEVNIKOV: POTOVANJE OD IGRE DO TRAJNOSTNEGA ŽIVLJENJA	52
NURTURING YOUNG ECO-WARRIORS: A JOURNEY FROM PLAY TO SUSTAINABLE LIVING	52
Simona Šamu	53
EKOLOŠKO OZAVEŠČANJE DIJAKOV S POMOČJO MATEMATIKE	53
ECOLOGICAL AWARENESS IN MATHEMATICS	53
Saša Šimičić	54
VLOGA FOTOGRAFIJE PRI OKOLJSKEM OZAVEŠČANJU	54
THE ROLE OF PHOTOGRAPHY IN ENVIRONMENTAL AWARENESS	54
Jasmina Temnik Kerš	55
MOTIVI NARAVE V CANKARJEVEM DELU	55
NATURE MOTIVES IN CANKAR'S WORK	55
Boris Toplak	56
POVEZAVA MED PREHRANJEVALNIMI VZORCI IN STOPNJO ŠPORTNE DEJAVNOSTI PRI DIJAKIH SSI IN SPI NA TEHNIŠKEM ŠOLSKEM CENTRU MARIBOR	56

RELATIONSHIP BETWEEN DIETARY PATTERNS AND LEVEL OF SPORTS ACTIVITY AMONG SSI AND SPI STUDENTS AT THE TECHNICAL SCHOOL CENTER MARIBOR.....	56
Barbara Toš	57
VKLJUČEVANJE ESE PROSTOVOLJCEV V ŠOLSKI PROSTOR – DELO NA ŠOLSKEM VRTU	57
INCLUDING ESC VOLUNTEERS IN THE SCHOOL ENVIRONMENT - WORKING IN THE SCHOOL GARDEN	57
Tanja Tratenšek	59
O ČLOVEKOVEM ODNOSU DO NARAVE SKOZI BRANJE LEPOSLOVJA V BRALNEM KLUBU.....	59
EXPLORING HUMAN RELATIONSHIP WITH NATURE THROUGH FICTION READING IN A BOOK CLUB.....	59
Marija Trnovec.....	60
UPORABA ODPADNIH MATERIALOV PRI POUČEVANJU OTROK S POSEBNIMI POTREBAMI.....	60
USE OF WASTE MATERIALS IN TEACHING CHILDREN WITH SPECIAL NEEDS.....	60
Lucija Varga	61
EKOLOŠKA OZAVEŠČENOST UČITELJEV RAZREDNEGA POUKA V SLOVENIJI.....	61
ECOLOGICAL AWARENESS OF PRIMARY SCHOOL TEACHERS IN SLOVENIA	61
Teodor Varga.....	62
VPLIV DEBELINE ZIDAKOV NA ENERGETSKO UČINKOVITOST GRADNJE TITLE: INFLUENCE OF BRICK THICKNESS ON THE ENERGY EFFICIENCY OF CONSTRUCTION	62
Maja Weiss.....	63
DVIG BRALNE PISMENOSTI SKOZI PROJEKT »EKOBRANJE ZA EKOŽIVLJENJE«	63
RAISING READING LITERACY THROUGH THE ECO-READING FOR ECO- LIFE PROJECT	63
Zinka Zadavec	64
SKRB ZA PTICE PRI MALČKIH V VRTCU PLAVČEK.....	64
CARE FOR BIRDS AMONG TODDLERS IN PLAVČEK KINDERGARTEN	64
Vanja Zelenc	65
PRIMERJAVA podeželskih in mestnih dijakov o ozaveščenosti ekološko pridelane hrane	65

COMPARISON OF RURAL AND URBAN STUDENTS ABOUT THE AWARENESS OF ORGANICLY PRODUCED FOOD.....	65
Petra Župevc.....	66
VPLIV MODNE INDUSTRIJE NA OKOLJE – Ali obleka res naredi človeka?	66
THE IMPACT OF THE FASHION INDUSTRY ON THE ENVIRONMENT: DO THE CLOTHES MAKE THE MAN?	66

ALI LAHKO ZAUPAMO OZNAKAM NA EMBALAŽI NARAVNE IN EKOLOŠKE KOZMETIKE?

POVZETEK

Naravna in ekološka kozmetika postajata vse bolj priljubljeni izbiri potrošnikov, saj se ti vedno bolj zavedajo pomena varnosti, trajnosti in etičnosti pri izbiri kozmetičnih izdelkov. Kljub temu pa se pojavlja problem zavajajočega oglaševanja, ki potrošnike vodi v napačna prepričanja o sestavi in varnosti teh izdelkov.

Učne ure na temo naravne in ekološke kozmetike so bile izvedene z namenom spodbujanja kritičnega mišljenja in ozaveščanja dijakov o pomembnosti preverjanja varnosti ter verodostojnosti kozmetičnih izdelkov.

Zanimalo me je kakšna so stališča dijakov do naravne in ekološke kozmetike. Zato sem izvedla anketo in med drugim ugotovila, da večina dijakov svoje znanje o naravni in ekološki kozmetiki ter certifikatih, ki zagotavljajo njihovo kakovost, ocenjuje kot nezadostno. Kljub temu pa kažejo zainteresiranost za to temo ter motiviranost za to, da preučijo sestavine v kozmetičnih izdelkih, ki jih sami uporabljajo.

Dijaki so med izvedenimi učnimi urami spoznali aplikacijo INCI Beauty ter analizirali sestavo izbranih kozmetičnih izdelkov. Skozi izvedene učne ure so spoznali značilnosti naravne in ekološke kozmetike ter zahteve, ki jih kozmetični izdelki morajo izpolnjevati za pridobitev verodostojnih certifikatov, ki potrjujejo, da so le ti naravni oziroma ekološki.

Izvedene učne ure spodbujajo razvoj kritičnega mišljenja pri dijakih. Poleg tega so dijaki skozi izvedene učne ure imeli priložnost za medsebojno sodelovanje, medpredmetno povezovanje ter uporabo IKT pripomočkov.

KLJUČNE BESEDE: naravna kozmetika, ekološka kozmetika, zeleno zavajanje, kritično razmišljanje.

CAN WE TRUST THE LABELS ON THE PACKAGING OF NATURAL AND ORGANIC COSMETICS?

ABSTRACT

Natural and organic cosmetics are becoming increasingly popular choices among consumers, as they are increasingly aware of the importance of safety, sustainability and ethics when choosing cosmetic products. Nevertheless, there is a problem of misleading advertising that leads consumers into false beliefs about the composition and safety of these products. Lessons on the topic of natural and organic cosmetics were held with the aim of encouraging critical thinking and raising students' awareness of the importance of checking the safety and authenticity of cosmetic products. I was interested in the students' attitudes towards natural and organic cosmetics. Therefore, I conducted a survey and found, that the majority of students consider their knowledge of natural and organic cosmetics and the certificates that guarantee their quality to be insufficient. Nevertheless, they show an interest in the subject and a motivation to study the ingredients in the cosmetic products they use themselves. During the lessons, students learned about the INCI Beauty application and analyzed the composition of selected cosmetic products. Through the lessons, they learned about the characteristics of natural and organic cosmetics and the requirements that cosmetic products must meet in order to obtain authentic certificates that confirm that only these are natural or organic. Conducted lessons encourage the development of critical thinking in students. Additionally, during the lessons, the students had the opportunity for mutual cooperation, cross-curricular connections and the use of ICT tools.

KEY WORDS: natural cosmetics, ecological cosmetics, greenwashing, critical thinking.

RAZVIJANJE ČUTNIH SISTEMOV Z ODPADNIM MATERIALOM V PRVEM RAZREDU OSNOVNE ŠOLE

POVZETEK:

Otroci se učijo skozi igro, preko gibanja in senzornih informacij, ki jih dobijo iz okolja. Preko čutov pridobivajo informacije o dogajanju v in okoli njih. Informacije sprejemajo preko sedmih čutnih sistemov – s taktilnim, vizualnim, olfaktornim, avditivnim, gustatornim, proprioceptivnim in vestibularnim sistemom. Vse te informacije morajo možgani primerno organizirati, razvrstiti, usmeriti ali označiti kot (ne)pomembne. Če otrok uspešno obdeluje senzorne informacije, tvori dobre temelje za motorični, kognitivni, socialni in čustveni razvoj, kar omogoča uspešnejše učenje. V prispevku bodo predstavljene konkretne aktivnosti za spodbujanje različnih čutnih sistemov z odpadnim materialom, ki so jih učenci opravljali po postajah.

Doprinos prispevka k stroki so v praksi preizkušene aktivnosti, ki so se izkazale kot dobro sredstvo za obogatitev pouka. Z metodo opazovanja in razgovorom z učenci po izvedenih aktivnostih je bilo ugotovljeno, da so bile aktivnosti učencem zanimive in so jih radi opravljali. S krajšimi sprostitevni dejavnostmi med postajami, so se učenci lažje lotili težjih nalog. Delo po postajah je učencem omogočalo, da so prišli v kratkem času v stik z več materiali in urili različne spretnosti, hkrati pa omogoča možnost za sprostitev in igro. Predstavljene aktivnosti predstavljajo način učenja, ki učence dodatno motivira. Pri aktivnostih so uspešni in tako krepijo svojo pozitivno samopodobo. Predstavljene aktivnosti lahko učitelji prve triade uporabijo pri svojem poučevanju in ustvarjajo spodbudno učno okolje v svojih učilnicah. Odpadni materiali so lahko dostopni, poznani in omogočajo raznolike izdelke, zato imamo učitelji veliko možnosti za njihovo uporabo v razredu.

KLJUČNE BESEDE: osnovna šola, odpadni material, čutni sistemi, delo po postajah

DEVELOPING SENSORY SYSTEMS WITH WASTE MATERIAL IN THE FIRST GRADE OF PRIMARY SCHOOL

ABSTRACT:

Children learn through play, through movement and sensory information they get from the environment. Through their senses, they obtain information about what is happening in and around them. They receive information through seven sensory systems – tactile, visual, olfactory, auditory, gustatory, proprioceptive and vestibular. All this information must be properly organized, classified, directed or marked as (un)important by the brain. If a child successfully processes sensory information, it forms a good foundation for motor, cognitive, social and emotional development, which enables more successful learning. The paper will present concrete activities for the stimulation of different sensory systems with waste material, which the students performed at the stations.

The contribution of the contribution to the profession are the activities tested in practice, which have proven to be a good means of enriching the lessons. Using the method of observation and interviewing the students after the activities, it was established that the activities were interesting to the students and they liked to do them. With shorter relaxation activities between stations, students tackled more difficult tasks more easily. Working in stations allowed the students to come into contact with several materials in a short time and train different skills, while at the same time providing an opportunity for relaxation and play. The presented activities represent a way of learning that additionally motivates students. They are successful in activities and thus strengthen their positive self-image. The presented activities can be used by teachers of the first triad in their teaching and create a stimulating learning environment in their classrooms. Waste materials are easily accessible, familiar and allow for a variety of products, so teachers have many options for using them in the classroom.

KEYWORDS: primary school, waste material, sensory systems, station work.

VKLJUČEVANJE SPREHODA V PREDMET VAROVANJE OKOLJA Z OSNOVAMI TRAJNOSTNEGA RAZVOJA.

POVZETEK

Učenje med sprehodom se izkaže za koristno za dijake s posebnimi potrebami saj izboljšuje njihovo pozornost in koncentracijo z aktivnim učenjem v gibanju. V majhnih razredih, kjer število dijakov ne presega sedmih, lahko učitelj bolj personalizirano pristopi k vsakemu dijaku, kar vodi do boljšega sodelovanja in manjše tesnobe. Pri predmetu Varovanje okolja z osnovami trajnostnega razvoja sem pogosto vključeval sprehode, ki niso vnaprej napovedani in služijo kot sredstvo za umirjanje dijakov po stresnih situacijah. Med takimi sprehodi dijaki raziskujejo lokalno okolico, kot so bežigranski zeleni klin in POT, ter se učijo skozi neposredno opazovanje narave. Metoda opazovanja vključuje neposredno spremljanje dijakov med sprehodom in zabeleženje njihovih reakcij, stopnje sodelovanja ter sprememb v pozornosti in koncentraciji. Rezultati kažejo, da so dijaki bolj angažirani, ko se učijo med sprehodom, kar se odraža v boljši koncentraciji in manjši anksioznosti. Poleg tega je bil opazen pozitiven vpliv na kognitivne funkcije dijakov, kar se kaže v boljši uspešnosti pri učenju.

Doprinos prispevka k stroki je v praksi dokazana učinkovitost učenja med sprehodom pri dijakih s posebnimi potrebami in drugimi motnjami. Ta pristop ne le omogoča boljšo učno izkušnjo, temveč tudi poudarja pomen neposrednega stika z okoljem pri učenju. Kljub temu pa je potrebno natančno načrtovanje in nadzor nad aktivnostmi, da se zagotovi varnost in povezava s šolsko snovjo.

KLJUČNE BESEDE: posebne potrebe, ZGNL, moteče vedenje, anksioznost, varovanje okolja.

INCORPORATING WALKS INTO THE SUBJECT OF ENVIRONMENTAL CONSERVATION WITH BASICS OF SUSTAINABLE DEVELOPMENT.

ABSTRACT

Learning during walks proves to be beneficial for students with special needs as it enhances their attention and concentration through active learning in motion. In small classes, where the number of students does not exceed seven, the teacher can approach each student more personalized, leading to better collaboration and less anxiety. In the subject of Environmental Protection with Basics of Sustainable Development, I often included walks that were not pre-announced and served as a means of calming students after stressful situations. During such walks, students explore the local environment, such as the Bežigrad Green Ring and the POT, and learn through direct observation of nature.

The observation method involves direct monitoring of students during walks and recording their reactions, levels of participation, and changes in attention and concentration. The results show that students are more engaged when learning during walks, which is reflected in better concentration and less anxiety. Additionally, a positive impact on students' cognitive functions has been observed, resulting in better learning performance.

The contribution of the study to the field lies in the demonstrated effectiveness of learning during walks for students with special needs and other disorders. This approach not only enables a better learning experience but also emphasizes the importance of direct interaction with the environment in learning. However, precise planning and supervision of activities are necessary to ensure safety and alignment with the school curriculum.

KEYWORDS: special needs, ZGNL, disruptive behavior, anxiety, environmental conservation.

EKO DEJAVNOSTI IN OKOLJSKA VZGOJA NA NAŠI ŠOLI

POVZETEK

Skrb za okolje postaja v 21. stoletju zelo pomembna naloga posameznika in družbe. Opazen je velik poudarek na okoljski vzgoji. Informacijam, ekoaktivnostim in okoljski vzgoji veliko časa namenimo tudi v šolah. Okoljske vrednote se oblikujejo v družini, vrtcu, šoli. Zgledi in spodbude staršev in učiteljev so pri tem zelo pomembni. V prispevku utemeljujem pomen okoljskih aktivnosti in metod učenja, ki so potrebne za trajnostno ekološko ozaveščenost in pismenost. Moj namen je predstaviti nekaj primerov dobre pedagoške prakse na temo ekoloških vsebin, ki jih kot ekokoordinatorica na naši podružnični šoli izvajam že vrsto let. Izziv mi predstavlja tudi sodelovanje s krajanji, z gasilci in s širšo lokalno skupnostjo. Trudim se, da bi ekološka ozaveščenost in ekološke vrednote pri učencih postale ponotranjene, trajne in njihov način življenja. Ponosna sem, da naše generacije učencev z okoljskim delom nadaljujejo. V okoljske dejavnosti so vključeni vsi učenci naše šole. Z uporabo metode opazovanja, z beleženjem rezultatov in z njihovim prikazom sem ugotovila, da učenci pri okoljskih aktivnostih in akcijah radi sodelujejo. Na vsakoletni ekoprireditvi učencem in kolektivu predstavim rezultate dela. Najbolj prizadevnim ekošolarjem za njihov trud podelim sponzorsko nagrado in pohvalo. Za moj doprinos k stroki je izjemnega pomena spoznanje, da se zaradi okoljskih aktivnosti pri učencih oblikujejo socialne veščine, medosebni odnosi, prijateljske vezi in humanost ter posluš in večja skrb za okolje in naš planet. Cilj mi predstavlja okoljsko ozaveščen učenec, ki bo sposoben kritičnega mišljenja in spodbujen za iskanje ustvarjalnih rešitev na področju ekologije.

KLJUČNE BESEDE: ekologija, okoljska vzgoja, ekološka ozaveščenost.

ECO ACTIVITIES AND ENVIRONMENTAL EDUCATION AT OR SCHOOL

ABSTRACT

Taking care of the environment is becoming a very important task for individuals and society as a whole in the 21st century. There is a strong emphasis on environmental education. A lot of time is devoted to providing information, eco-activities and environmental education in schools. Environmental values are formed within the family, kindergarten, school. Examples and encouragement from parents and teachers are of crucial importance in this process. In this paper, I argue the importance of environmental activities and learning methods, which are necessary for sustainable ecological awareness and literacy. My intention is to present some examples of good pedagogical practice on the topic of ecological content, which I have been practicing for many years as an eco-coordinator at our branch school. I also found it challenging to work with locals, firefighters and the wider local community. I strive to make ecological awareness and ecological values in students internalized, permanent, and their way of life. I am proud that our generations of students continue with environmental work. For my contribution to the field, it is of great importance to realize that environmental activities help students develop social skills, interpersonal relationships, friendship and humanity, as well as attentiveness and greater care for the environment and our planet. My goal is an environmentally conscious student who will be capable of critical thinking and encouraged to find creative solutions in the field of ecology.

KEYWORDS: ecology, environmental education, ecological awareness.

USTVARJAJ Z MANO IZ ODPADNEGA MATERIALA

POVZETEK

V vsakdanjem življenju ljudje ustvarjamo obsežne količine odpadkov. Poudarek na odpadkih in pomen ponovne uporabe v predšolski vzgoji ima dolgoročen pozitiven vpliv na okolje ter oblikovanje trajnostnih navad in vrednot pri otrocih že v zgodnji starosti. Kot vzgojiteljica imam pomembno vlogo, da s svojim vzorom in navdihom spodbujam ločevanje odpadkov, recikliranje in ponovno uporabo, tako da bo skrb za okolje in naravo postala del življenja otrok.

S svojim prispevkom želim predstaviti konkretne primere ponovne uporabe odpadnih materialov za igro v predšolskem obdobju. Otroci so prinašali v vrtec odpadno embalažo. Sledile so njihove ideje in tako smo iz že odslužene embalaže pričeli z izdelovanjem novih uporabnih izdelkov. Naredili smo lutke za lutkovno predstavo, robotke za pustno povorko, ter družabne igre. Na izdelane igre so zelo ponosni, jih negujejo ter ponujajo otrokom iz drugih oddelkov. Otroci in tudi starši so se aktivno vključili v dejavnosti preko ustvarjalnih delavnic, razvijajoč s tem zavedanje o pomenu varovanja okolja. Otroci so se naučili pomembnih ekoloških vrednot ter pridobili praktične spretnosti za ponovno uporabo, kar je cilj večmesečnega projekta. S svojim sodelovanjem, izmenjavo idej ter deljenjem virov in izkušenj ustvarjam v vrtcu okolje, kjer se trajnostno razmišljanje in ponovna uporaba materialov vključita v vsakodnevno delo celotnega vrtca.

KLJUČNE BESEDE: predšolska vzgoja, odpadki, ponovna uporaba.

TITLE: CREATE WITH ME FROM RECYCLED MATERIALS

ABSTRACT

In everyday life, people generate extensive amounts of waste. Emphasizing waste management and the importance of reuse in preschool education has a long-term positive impact on the environment and the formation of sustainable habits and values in children from an early age. As an educator, I play a crucial role in encouraging waste separation, recycling, and reuse by setting an example and inspiring children, making environmental care and nature an integral part of their lives.

With my contribution, I aim to present specific examples of reusing waste materials for play in the preschool period. Children brought waste packaging to the kindergarten. Their ideas followed, and we began creating new useful items from discarded packaging. We made puppets for puppet shows, robots for the carnival parade, and board games. Children take great pride in their creations, nurture them, and share them with children from other classes. Both children and parents actively participated in activities through creative workshops, thereby developing awareness of the importance of environmental conservation. Children learned essential ecological values and gained practical skills for reuse, which is the goal of the multi-month project. Through collaboration, the exchange of ideas, and sharing resources and experiences, I create an environment in the kindergarten where sustainable thinking and the reuse of materials are integrated into the daily activities of the entire institution. This can contribute to building a more conscious and sustainability-oriented community within the kindergarten.

KEYWORDS: preschool education, waste, reuse.

RAČUNALNIŠKO VREDNOTENJE REZULTATOV BARVANJA OVČJE VOLNE S POSUŠENIMI LISTI NAVADNEGA OREHA

POVZETEK

V pričujoči raziskavi so podani rezultati barvanja volne z naravnimi rastlinskimi barvili. Uporabljeni so bili posušeni listi navadnega oreha (*Juglans regia*), iz katerih je bila izvedena ekstrakcija. Primerjane so barvne vrednosti vzorcev, obarvanih samo v ekstraktu ter obarvanih vzorcev, ki jim je bila v postopku poobdelave ob urejenem pH dodana Fe-kovinska sol oz. Cu-kovinska sol in jabolčni kis. Ti dodatki omogočajo bolj pestre barvne tone, obenem pa tudi močnejšo fiksacijo barvil. Nekaj vzorcem je bil opravljen preizkus barvne obstojnosti proti poklicnemu in gospodinjskemu pranju. Rezultati so barvnometrično ovrednoteni po CIELAB-sistemu in grafično prikazani kot paleta rjavih barvnih odtenkov. Tako obarvana volna služi uporabi v rokodelskih dejavnostih in izdelavi unikatnih izdelkov. Ta način barvanja predstavlja alternativo kemičnim postopkom barvanja. Kemični načini barvanja negativno vplivajo na okolje. Tudi ostanki barvil na tekstilijah imajo lahko negativen vpliv na zdravje ljudi. Torej je barvanje z naravnimi barvili naravi in človeku bolj prijazno.

KLJUČNE BESEDE: volna, rastlinska barvila, navadni oreh, barvanje volne, pranje volne, barvna metrika.

COMPUTER EVALUATION OF THE RESULTS OF DYEING SHEEP WOOL WITH DRIED WALNUT LEAVES

ABSTRACT

In the present study the results of dyeing wool with natural vegetable dyes are presented. Dried leaves of the common walnut (*Juglans regia*) were used and extracted. The colour values of the samples dyed only in the extract are compared with the other dyed samples. To these samples, Fe-metal salt or Cu-metal salt and apple cider vinegar were added in the post-treatment process at an adjusted pH value. These additives allow for more varied colour tones, but also a stronger fixation of the dyes. Some samples were tested for colour fastness against professional and household washing. The results are colour-metrically evaluated using the CIELAB system and graphically displayed as a range of brown colour shades. Wool dyed in this way is used in handicrafts and in the manufacture of unique products. This dyeing method is an alternative to chemical dyeing processes. Chemical dyeing methods have a negative impact on the environment. Also, dye residues on textiles can have a negative impact on human health. Therefore, dyeing with natural dyes is more environmentally and human friendly.

KEYWORDS: wool, vegetable dyes, walnut, wool dyeing, wool washing, colour metrics.

EKOMULCI NA POHODU

POVZETEK

Naš planet je vedno bolj onesnažen. Otrok, ki ima spodbuden ekološki zgled in raste z njim, ve, kako pomembno je, da vsi skrbimo za naravo. Z ekološkim zavedanjem je potrebno začeti že v vrtcu in nadaljevati v šoli. Otroci morajo vedeti, kaj lahko sami naredijo, da ohranijo naravo čisto. V prispevku bom predstavila, kako v razredu ozaveščam ekološke teme. S predstavljenimi primeri želim izboljšati odnos učencev do narave, vplivati na zmanjšane količine odpadkov in njihovo pravilno odlaganje. Posebej se tem temam posvetimo v aprilu, saj 22. aprila obeležujemo dan Zemlje. Učenci v teh dneh poslušajo ekološko pravljico, poustvarjajo nanjo, ločujejo odpadke, rešujejo eko kviz, raziskujejo, kaj Zemlji škodi in kako lahko sami poskrbijo zanjo, Zemlji pišejo pismo, pesnijo in prepevajo. Ekološkim temam pa se ne posvečam samo v omenjenem času, ampak skozi celo šolsko leto, saj v oddelku s fit metodami preko predstavljene igre dosledno ločujemo odpadke, pridno zbiramo star papir, zamaške, kartuše, baterije, večkrat zapojemo eko himno ... Učenci so s svojimi idejami in izdelki pokazali veliko novo pridobljenega znanja na temo odpadkov in varovanja narave, kar je tudi namen ekoloških dni. Ekološko zavedanje pri učencih je potrebno spodbujati s praktičnimi in drugačnimi pristopi, kar moj prispevek tudi dokazuje. Kviz in igra Pobiranje odpadkov s fit metodo sta bila predstavljena na hospitacijski uri pred sodelavci ter z namenom širjenja dobrih praks in doprinosa k stroki.

KLJUČNE BESEDE: Zemlja, ekološko zavedanje, ekološki zgled, ločevanje odpadkov, fit pedagogika.

ECOBRATS ON THE HIKE

ABSTRACT

Our planet is getting more and more polluted. A child who has an encouraging ecological role model and grows up with it knows how important it is that we all take care of nature. It is necessary to start with ecological awareness in kindergarten and continue in school. Children need to know what they can do to keep nature clean. In the article, I will present how I raise awareness of ecological topics in the classroom. With the presented examples, I want to improve the students' attitude towards nature, have effect on the reduced amount of waste and its proper disposal. We pay special attention to these topics in April, as we celebrate the Earth Day on April 22. During these days, students listen to an ecological fairy tale, create different things about it, separate waste, solve an eco quiz, research what harms the Earth and how they can take care of it themselves, write a letter to the Earth, write poems and sing. I don't focus on ecological topics only during that time, but throughout the whole school year, because we consistently (while playing the game and using fit methods) separate waste in the classroom, diligently collect old paper, corks, cartridges, batteries, we repeatedly sing the eco anthem ... With their ideas and products, the students showed a lot of newly acquired knowledge on the topic of waste and nature protection, which is also the purpose of ecological days. We must necessarily encourage ecological awareness among children with practical and different approaches, which is also proved by my article. The quiz and the game Picking up waste with the fit method were presented in the lesson observation in front of colleagues with the aim of spreading good practices and contributing to the profession.

KEYWORDS: Earth, ecological awareness, ecological example, waste separation, fit pedagogy.

EKOLOŠKA OZAVEŠČENOST DIJAKOV V PROGRAMIH SSI NA TEHNIŠKEM ŠOLSLEM CENTRU MARIBOR

POVZETEK

Ozaveščenost mladih glede okoljskih problemov je v današnjem času izjemno pomembna tema, zato nas je zanimalo, v kolikšni meri se ti dejansko zavedajo vpliva posameznika na okolje in ali se aktivno zavzemajo za trajnostno in odgovorno ravnanje. Na začetku šolskega leta 2023/2024 smo na Tehniškem šolskem centru Maribor izvedli med dijaki anonimno anketo. Raziskava je bila osredotočena na to, kako dobro so naši dijaki seznanjeni z ekološkimi vprašanji, kakšen je njihov odnos do okoljevarstvenih praks in v kolikšni meri so vključeni v trajnostne dejavnosti.

Anketo smo posredovali 317 dijakom vseh letnikov obeh programov srednjega strokovnega izobraževanja, anketo pa je izpolnilo 138 dijakov. Rezultati ankete so pokazali, da se z ekološko ozaveščenostjo povečuje tudi zanimanje dijakov za okoljevarstvene aktivnosti, in razkrili, katere ekološke prakse so dijakom najbolj poznane in katere manj, kateri okoljski problemi jih najbolj skrbijo ter kako pogosto se udeležujejo aktivnosti, povezanih z varovanjem okolja.

V prispevku so podrobneje predstavljeni rezultati ankete, ki prikazujejo, da se v večji meri dijaki zavedajo problema okoljskih sprememb, prav tako se večina strinja, da z osebnim delovanjem prispevajo k boljšemu okolju, najmanj pa jih sodeluje v okoljskih akcijah in se trudi za zmanjšanje porabe plastike. Slednje bi bilo potrebno nasloviti, saj je poraba plastike tudi med mladimi izjemno visoka. V prispevku smo predlagali načine, kako lahko na šoli ozaveščamo dijake, da se vedejo okolju bolj prijazno in na ta način tudi sami prispevajo k bolj zeleni prihodnosti.

KLJUČNE BESEDE: ekološka ozaveščenost, dijaki, okoljevarstvene aktivnosti, trajnostni razvoj.

ECOLOGICAL AWARENESS OF STUDENTS OF TECHNICAL EDUCATION PROGRAMS AT TECHNICAL SCHOOL CENTER MARIBOR

ABSTRACT

The awareness of young people regarding environmental issues is an exceptionally important topic in today's world. Therefore, we were interested in understanding to what extent they are aware of the individual's impact on the environment and whether they actively advocate for sustainable and responsible behavior. At the beginning of the 2023/2024 school year, we conducted an anonymous survey among students at the Technical School Center Maribor. The research focused on how well our students are informed about ecological issues, what their attitude is towards environmental practices, and to what extent they are involved in sustainable activities.

We distributed the survey to 317 students from all grades of both technical education programs, and 138 students completed the survey. The results showed that ecological awareness correlates with an increased interest in environmental activities among students. The survey also revealed which ecological practices are most familiar to students, which ones are less known, what environmental issues concern them the most, and how often they participate in environmental conservation activities.

The article presents in detail the survey results, demonstrating that students are mostly aware of environmental issues. Most agree that their individual actions contribute to a better environment, but fewer actively participate in environmental initiatives and efforts to reduce plastic consumption. Addressing the latter is crucial since plastic consumption among young people is remarkably high. The article suggests ways in which the school can raise awareness among students to behave more environmentally friendly and contribute to a greener future.

KEYWORDS: ecological awareness, students, environmental activities, sustainable development.

CICI EKOLOGIJA VSAK DAN

POVZETEK

Predpona EKO je danes široko uporabljena. Pogosto je sopomenka za sorodno, a mnogo ožje okoljevarstveno prizadevanje. Namen prispevka je podeliti primer dobre prakse, kako smo široko področje ekologije otrokom 1. in 2. razreda predstavili ob vsakodnevnih učnih situacijah. Ob tem so otroci razvijali zavedanje, kako je življenje medsebojno povezano in odvisno in je za odgovoren odnos do okolja potrebno predvsem naše spoštovanje. Ob različnih dejavnostih so otroci ustvarjali nove besede s predpono eko npr. eko-umetniki, eko-športniki, ekoprijatelji, eko-vedeži, eko-pesniki, eko-jedci... Vse so slikovito ponazarjale naš odnos do narave, ki je naš dom. Učilnico smo zamenjali z naravnim učnim okoljem. Delček naravnega okolja smo prenesli v razred in uredili terarij, skrbeli za rastline, vzgojili potaknjence. Pri raziskovanju gozda in življenja smo postali ekoprijatelji. Največ možnosti za ekološko ravnanje gotovo predstavlja ravnanje z odsluženo embalažo, ki smo jo ponovno uporabili za izdelavo uporabnega, igralnega ali okrasnega predmeta. Z uporabo odpadnih materialov pri našem ustvarjanju smo postali eko-umetniki. Odnos do okolja in življenja smo razvijali tudi z odnosom do hrane, saj je problem sodobnega človeka tudi velika količina zavržene hrane. Uživanje hrane ni povsem samoumevna dejavnost, zato smo se trudili za spoštljiv odnos do hrane in postali eko-jedci. Ko smo za gibanje uporabljali priločne materiale ali ponovno uporabili odpadni material, smo postali eko-športniki. Kot sklep našega eko prizadevanja na različnih področjih našega življenja, je nastala pesem Eko življenje.

KLJUČNE BESEDE: ekologija, naravna učilnica, gibanje, ustvarjanje, odnos do hrane.

CICI ECOLOGY EVERY DAY

ABSTRACT

The prefix EKO is widely used today. It is often a synonym for a related but much narrower environmental effort. The purpose of the contribution is to give an example of good practice, how we presented the broad field of ecology to children in the 1st and 2nd grades in everyday learning situations. At the same time, the children developed an awareness of how life is interconnected and dependent, and that a responsible attitude towards the environment requires above all our respect. During various activities, the children created new words with the prefix eco- e.g. eco-artists, eco-athletes, eco-friends, eco-sages, eco-poets, eco-eaters... They all vividly illustrated our relationship to nature, which is our home. We replaced the classroom with a natural learning environment. We transferred a piece of the natural environment to the classroom and arranged a terrarium, took care of the plants, and grew cuttings. When exploring the forest and life, we became eco-friends. The greatest possibility for ecological handling is certainly the handling of used packaging that has been reused to make a useful, toy or decorative item. By using waste materials in our creation, we have become eco-artists. We have also developed our attitude towards the environment and life through our attitude towards food, as the problem of modern man is also the large amount of wasted food. Eating food is not a completely self-evident activity, so we tried to have a respectful attitude towards food and became eco-eaters. When we used convenient materials for movement or reused waste material, we became eco-athletes. As a result of our eco efforts in various areas of our life, the song Eco life was created.

KEYWORDS: ecology, natural classroom, movement, creation, attitude to food.

SKRB ZA OKOLJE JE SKRB ZA ŽIVLJENJE

POVZETEK

Živimo v času, ko je nujno potrebno in pomembno, da vsi skupaj poskrbimo za naše okolje. Učitelji imamo poleg staršev s svojim zgledom in poučevanjem ter vzgajanjem zelo velik vpliv na vrednote otrok. V prispevku so predstavljene dejavnosti, s katerimi na OŠ Vodice že vrsto let sledimo ciljem ekološke osveščenosti. Učenci sodelujejo pri akcijah zbiranja starega papirja, kartuš, baterij, mobilnih telefonov, zamaškov, oblačil. Učijo se pravilnega ločevanja odpadkov in njihove ponovne uporabe. Drug drugega opazujejo, opozarjajo in spodbujajo. Sodelujejo pri čistilnih akcijah v okolici šole in v lokalni skupnosti. S skupnimi močmi si prizadevamo k zmanjšanju odpadkov, predvsem pa za manj zavržene hrane. Izboljšujejo prehranjevalne navade in odnos do hrane, opazujejo dnevno količino zavržene hrane na šoli in iščejo rešitve za zmanjšanje. Učenci zasajajo in vzgajajo rastline v šoli in njeni okolici. Eko branje vključujemo v različne ure pouka. S četrtošolci smo se ukvarjali tudi z dokaj tabu temo, kako opravljamo veliko in malo potrebo v naravi, v gozdu. »Kam gre cesar peš v naravi« so učenci raziskali v svoji bližnji okolici in na pohodniških poteh. Hitro so našli veliko primerov, ki so dokaz za upravičeno skrb tovrstnega onesnaževanja. Kreativno so predstavili kar nekaj svojih idej za rešitev te problematike. S prispevkom želimo predstaviti, kako lahko učenci z domiselnimi idejami, kreativnostjo in raziskovalnim zanimanjem sodelujejo pri skrbi za ohranjanje čistega okolja in na preprost način razvijajo tudi čuteč odnos do okolja.

KLJUČNE BESEDE: ekologija, osveščenost, eko aktivnosti, skrb za okolje.

CARE FOR THE ENVIRONMENT IS CARE FOR LIFE

ABSTRACT

We live in time when it is absolutely necessary and important that we all take care of our environment together. In addition to parents, teachers have a great influence on the values of children through our example and teaching and upbringing. The article presents the activities with which Vodice Elementary School has been pursuing the goals of ecological awareness for many years. Students participate in actions to collect paper, cartridges, batteries, mobile phones, caps, clothes. They learn the proper separation of waste and its reuse. They watch, warn and encourage each other. They participate in cleaning campaigns around the school and in the local community. We work together to reduce waste, and above all to reduce food waste. They improve eating habits and attitudes towards food, observe the daily amount of food waste at school and look for solutions to reduce it. Students plant and grow plants in and around the school. We include eco-reading in various lessons. With the fourth-graders we also dealt with a fairly taboo topic how to fulfill our big and small needs in nature, in the forest. «Where the emperor goes on foot in nature» was explored by the students in their immediate surroundings and on hiking trails. They quickly found many examples that are proof of the justified concern of this type of pollution. They creatively presented quite a few of their ideas for solving this problem. With this contribution we want to present how students with imaginative ideas, creativity and research interest can cooperate in the maintenance of a clean environment and developed a sensitive attitude towards the environment in a simple way.

KEY WORDS: ecology, awareness, eco-activities, care for the environment.

RAZVIJANJE KOMUNIKACIJSKIH SPRETNOSTI PRI URESNIČEVANJU EKOLOŠKIH CILJEV NA RAZREDNI STOPNJI OSNOVNE ŠOLE

POVZETEK

Z okoljem lahko komuniciramo preko avditivnih in vizualnih sporočil. Učenci v osnovni šoli to počnejo s pisnimi in likovnimi sporočili, da tako več kodno opišejo željeno vsebino. To lahko izvedemo tudi na način medpredmetnega povezovanja slovenskega jezika in likovne umetnosti, katerega vsebina so vsebine trajnostnega razvoja.

V našem vnem ustvarjanju so učenci v parih zamenjali slike. V nadaljevanju so ob novem likovnem delu nprojektu, ki smo ga izvedli s četrtošolci in ga poimenovali *Izberi svojo prihodnost* smo povezali pisna in likovna sporočila o trajnostnem razvoju in ekoloških ciljih. Učenci so po predhodnem pogovoru imeli nalogo, da v parih ustvarijo likovni izdelek – sliko. Vsi učenci so v parih naslikali podoben motiv. Razlika je bila v tem, da je prvi učenec naslikal sliko z upoštevanjem ciljev trajnostnega razvoja in ekologije, drugi učenec pa je naredil ravno nasprotno. Po končanem likoapisali kratko zgodbo. Te so imele enako strukturo, vendar je v zgodbah zaznati očitna nasprotja med obema slikama. Učenci so preko ciljev likovne umetnosti in literarno ustvarjalnega dela realizirali tudi cilje slovenskega jezika. Vse dosežene cilje so vsebinsko povezali še s cilji trajnostnega razvoja in jih preko več kodne komunikacije tudi ponotranjili.

Kot zaključek projekta smo pripravili razstavo likovnih del in pod njimi kratke zgodbe, da so lahko vsi učenci šole ob ogledu del in prebranih zgodbah sami izbrali, kakšno prihodnost si želijo.

KLJUČNE BESEDE: več kodna komunikacija likovna umetnost, slovenski jezik, trajnostni razvoj, razredna stopnja osnovne šole.

DEVELOPING COMMUNICATION SKILLS TO ACHIEVE ENVIRONMENTAL GOALS IN PRIMARY SCHOOL

ABSTRACT

We communicate with our environment via auditory and visual messages. In primary schools, pupils use written and artistic forms of expression to convey the intended content in a complex way. This approach promotes cross-curricular integration by combining the Slovene language and visual arts with a common focus on the principles of sustainable development.

In our *Izberi svojo prihodnost* (Choose Your Future) project with fourth-graders, we integrated written and artistic expressions focusing on sustainable development. Pairs of pupils created paintings with a common theme but divergent approaches: one aligned with ecological goals, the other intentionally opposing. The pupils then exchanged their artwork within the pairs. A story with a consistent structure was crafted for the new artwork, revealing contradictions between the paired images. This innovative blend of visual art and literary creativity achieved project and fine arts goals while helping pupils reach their Slovene language objectives. The stories seamlessly connected artistic and linguistic achievements with broader goals of sustainable development and enhanced understanding through multi-code communication.

At the end of the project, we organised an exhibition of artworks and accompanying short stories. The exhibition gave all pupils the opportunity to reflect on their desired future by looking at the artworks and reading the stories. This encouraged reflection on choices and created a collective awareness of sustainability and environmental issues.

KEYWORDS: multi-code communication, fine arts, Slovene language, sustainable development, grade level of primary school.

LIKOVNO USTVARJANJE IN OBLIKOVANJE OKOLJEVARSTVENIH PLAKATOV KOT INOVATIVNO ORODJE ZA SPODBUJANJE OKOLJSKE OZAVEŠČENOSTI, PRIMER DOBRE PRAKSE V VZGOJNO-IZOBRAŽEVALNIH PROGRAMIH

POVZETEK

V današnjem svetu se soočamo z vedno večjimi izzivi glede ohranjanja okolja in trajnostnega razvoja. Zato je ključno, da razvijamo inovativne pristope v izobraževanju, ki bodo spodbujali okoljsko ozaveščenost in odgovorno ravnanje do okolja. V tem prispevku predstavljamo uporabo likovne dejavnosti, točneje oblikovanje ekoloških plakatov kot učinkovitega orodja za spodbujanje trajnostnega razmišljanja.

Namen pričujočega prispevka je predstaviti konkreten primer dobre prakse kot likovno ustvarjanje okoljevarstvenih plakatov v specifičnem vzgojno-izobraževalnem programu umetniške gimnazije – likovna smer. Izpostaviti želimo učinkovitost tega pristopa ter njegov prispevek k spodbujanju okoljske ozaveščenosti med dijaki.

Na podlagi obiska Kozjanskega regijskega parka, znanega po svoji biodiverziteti, so dijaki oblikovali plakate z okoljskimi in naravovarstvenimi vsebinami. Oblikovanje naravovarstvenih plakatov v učnem procesu prinaša številne pozitivne učinke. Učenci se ne le seznanijo z ekološkimi vsebinami, temveč tudi razvijejo kritično razmišljanje in raziskovalne ter likovne spretnosti. Poleg tega se poveča njihova motivacija za aktivno delovanje v korist okolja. Po izvedenem projektu se je izkazalo, da so dijaki, ki so sodelovali v projektu oblikovanja ekoloških plakatov, izkazali večjo skrb za okolje in večjo pripravljenost za trajnostno ravnanje.

Naš prispevek predstavlja inovativnost pri praktični uporabi že osvojenih znanj s področja risanja in slikanja. S predstavitvijo konkretnega primera dobre prakse v vzgojno-izobraževalnih programih nudimo dragocen vpogled v uporabo naravovarstvenih plakatov kot orodja za spodbujanje okoljske ozaveščenosti. Naše ugotovitve podpirajo potrebo po nadaljnjem razvoju in implementaciji podobnih pristopov v izobraževalnih sistemih.

KLJUČNE BESEDE: ekološki plakat, likovna dejavnost in ekološko ozaveščanje, ekološka sporočilnost v vizualnih komunikacijah.

ARTISTIC CREATION AND DESIGN OF ECOLOGICAL POSTERS AS AN INNOVATIVE TOOL FOR PROMOTING ENVIRONMENTALISM AWARENESS, AN EXAMPLE OF GOOD PRACTICE IN EDUCATIONAL PROGRAMS

ABSTRACT

In today's world, we face ever-increasing challenges regarding environmental preservation and sustainable development. It is therefore crucial that we develop innovative approaches in education that will promote environmental awareness and responsible behavior towards the environment. In this paper, we present the use of artistic activity, more precisely the design of environmental posters, as an effective tool for promoting sustainable thinking.

The purpose of this paper is to present a concrete example of good practice as the artistic expression in the form of environmental posters in a specific educational program of an art gymnasium - art major. We want to highlight the effectiveness of this approach and its contribution to promoting environmental awareness among pupils.

Based on the visit to the regional park Kozjansko, known for its biodiversity, pupils envisioned posters with environmental and environmentalist themes and ideas. The designing of environmental posters in the learning process brings many positive effects. Students are not only introduced to ecological content, but also develop critical thinking and research and art skills. In addition, their motivation to actively act in favor of the environment

increases. After the implemented project, it turned out that the students who participated in the project of creating ecological posters showed a greater concern for the environment and a greater readiness for sustainable behavior. Our contribution represents innovation in the practical application of already acquired skills in the field of drawing and painting. By presenting a concrete example of good practice in educational programs, we provide valuable insight into the use of ecological posters as a tool for promoting environmental awareness. Our findings support the need for further development and implementation of similar approaches in educational systems.

KEYWORDS: ecological poster, artistic activity and ecological awareness, ecological communication in visual communications.

POMEN ČISTE VODE ZA ŽIVLJENJE IN DOBRO POČUTJE

POVZETEK

Prispevek se osredotoča na raziskovanje trajnostnega ravnanja s pitno vodo in zavedanje med dijaki. Glavna tema prispevka je pomen čiste vode za življenje. Namen je predstaviti ključne ugotovitve kvantitativne raziskave, ki predstavijo prakse in znanje dijakov glede oskrbe s čisto, pitno vodo. Rezultati so pokazali, da dijaki izkazujejo razdeljeno zaupanja v kakovost vode iz javnega vodovodnega omrežja, saj več dijakov zaupa kakovosti pitne vode iz plastenk, kakor kakovosti pitne vode iz javnega vodovodnega omrežja. Dijaki so pokazali visoko ozaveščenost o kloriranju vode, ter nekaterih drugih temah v povezavi s čisto vodo. Obstajajo pa pomanjkljivosti v znanju dijakov o vzdrževanju in čiščenju vodovodnih sistemov. Spoznanja o znanju dijakov so izpostavila potrebo po izobraževanju o določenih temah, ki lahko okrepijo zavedanje o trajnostni rabi vode in zagotovijo varnost pitne vode v prihodnosti.

KLJUČNE BESEDE: voda, počutje, dijaki.

THE IMPORTANCE OF CLEAN WATER FOR LIFE AND WELL-BEING

ABSTRACT

The paper focuses on research into the sustainable handling of drinking water and awareness among students. The main topic of the paper is the importance of clean water. The purpose is to present the key findings of the research, which present the practices and knowledge of students regarding the supply of clean, drinking water. The results showed that students show divided trust in the quality of water from the public water network, as more students trust the quality of drinking water from bottles than the quality of drinking water from the public water network. The students showed a high awareness of water chlorination and some other topics related to clean water. However, there are deficiencies in the students' knowledge of the maintenance and cleaning of water supply systems. Findings about the students' knowledge highlighted the need for education on certain topics that can strengthen awareness of the sustainable use of water and ensure the safety of drinking water in the future.

KEYWORDS: water, well-being, students.

PRIMERJALNA ANALIZA KAKOVOSTI PITNIH VOD IZ VODOVODA, VODNIH ZAJETIJ IN IZVIROV

POVZETEK

Voda je bistvenega pomena za vse oblike življenja, kljub temu, da nima niti kalorične vrednosti niti organskih hranil. Z analizo različnih vodnih virov smo želeli raziskati in primerjati kakovosti različnih pitnih vod na Celjskem območju. Ugotoviti smo želeli katera voda je bolj kvalitetna in posledično bolj zdrava za ljudi. Osredotočili smo se na šest osnovnih analiz pitne vode. Določali oziroma analizirali smo barvo, motnost, oksidativnost, amonij, nitrite in nitrate. Rezultati so pokazali, da so vse analizirane vode primerne za pitje ter tudi dovolj kvalitetne. Najboljše oziroma najbolj kvalitetne vode so bile iz naravnih izvirov pod Starim gradom Celje in v mestnem parku Celje. Kot naslednja najbolj kvalitetna voda se je po naših analizah izkazala voda iz zajetja Hudinje pod Roglo. Za prihodnost je ključnega pomena, da z vodo in vodnimi viri ravnano preudarno. Zavedati se moramo, da je čista pitna voda izrednega pomena za zdravo življenje. Zato je nujnost ohranjanja virov kakovostne pitne vode ključna.

KLJUČNE BESEDE: voda, viri pitne vode, kakovost pitne vode, analize pitnih vod.

COMPARATIVE ANALYSIS OF THE QUALITY OF DRINKING WATER FROM WATER SUPPLY, WATER RESERVOIRS AND SPRINGS

ABSTRACT

Water is essential for all forms of life, even though it has neither caloric value nor organic nutrients. With analysis of different water sources, we wanted to investigate and compare the quality of different drinking waters in the Celje area. We wanted to discover which water is of better quality and consequently healthier for people. The focus was on six basic analyses of drinking water. We determined or analysed colour, turbidity, oxidation, ammonium, nitrite and nitrate. The results showed that all water sources analysed was suitable for drinking and of sufficient quality. The best or highest quality waters were from natural springs under the Old Castle of Celje and in Celje City Park. The next best quality water, according to our analyses, was from the water reservoir Hudinja under Rogla. It is crucial for the future that water and water resources are managed wisely. We need to be aware that clean drinking water is of paramount importance for a healthy life. Therefore, the need to preserve sources of good quality drinking water is crucial.

KEYWORDS: water, drinking water sources, drinking water quality, drinking water analysis.

EKOLOŠKI VIDIK OCENJEVANJA – PRIMERJAVA KLASIČNEGA IN DIGITALNEGA NAČINA PREVERJANJA ZNANJA

POVZETEK

V šolskem letu 2021/22 smo bili delavci s strani vodstva šole večkrat pozvani k odgovornemu in varčnemu tiskanju in fotokopiranju, saj smo redno presegali predvidene količine, s tem ustvarjali višje stroške, seveda pa večali tudi svoj okoljski odtis. Z analizo lastnega dela sem ugotovil, da veliko večino natisnjenih gradiv v mojem primeru predstavljajo pisni preizkusi znanja in gradiva za preverjanje znanja kot priprava na te preizkuse. V času dela na daljavo sem pridobil kar nekaj izkušenj z različnimi digitalnimi oblikami preverjanja znanja, zato sem v luči manjšanja svojega okoljskega odtisa razmišljal o alternativnih oblikah preverjanja in ocenjevanja, ki bi nadomestile pisne naloge na papirju. V prispevku bom primerjal »klasični« način pridobivanja pisne ocene z »digitalnim« načinom ocenjevanja s pomočjo gradnika za preizkuse znanja v spletni učilnici Moodle. Predstavil bom osnovne značilnosti obeh metod, izpostavil njune prednosti in slabosti ter časovni vidik sestavljanja, pregledovanja in ocenjevanja preizkusov. Na podlagi lastnih izkušenj bom predstavil argumente za izbiro načina preverjanja, ki ga uporabljam v svoji pedagoški praksi. Verjamem, da bo predstavitev zanimiva za vse profesorje, ki se vsaj občasno vprašujejo o ekoloških vidikih svojega pedagoškega dela in uspejo kritično analizirati svoje lastne pedagoške metode.

KLJUČNE BESEDE: ocenjevanje znanja, okoljski odtis, Moodle.

THE ECOLOGICAL ASPECT OF EVALUATION – COMPARISON OF TRADITIONAL AND DIGITAL ASSESSMENT METHODS

ABSTRACT

During the school year 2021/22, employees of our school were repeatedly encouraged to print and photocopy in a responsible and economical way, as we regularly exceeded the planned quantities, thereby increasing our costs and environmental footprint. By analysing my own work, I have found that the vast majority of printed materials in my case are written tests and preparation materials for examinations. During my time working remotely, I have gained some experience with different digital forms of assessment, so in the light of reducing my environmental footprint, I have been thinking about alternative forms of assessment and evaluation to paper-based written tests. In the presentation, I will compare the "traditional" written assessment with a "digital" grading through a quiz module of the Moodle learning platform. I will present the basic features of both methods, highlighting their advantages and disadvantages, as well as the time aspect of composing, revising and marking the tests. Based on my own experience, I will present the arguments for choosing the assessment method I use in my teaching practice. I believe that the presentation will be of interest to all professors who, at least occasionally, question the ecological aspects of their teaching work and manage to critically analyse their own teaching methods.

KEYWORDS: assessment, environmental footprint, Moodle.

VKLJUČEVANJE EKOLOŠKIH VSEBIN PRI POUČEVANJU MEHANSKE OBDELAVE IN AVTOMATIZACIJE V TEHNIŠKEM ŠOLSLEM CENTRU MARIBOR

POVZETEK

Nenehen razvoj človeštva in tehnologij nam na prvi pogled omogoča lažje življenje. Po drugi strani pa nam hiter razvoj zelo obremenjuje naš planet. Zaradi tega je potrebno že pri dijakih, ki jih poučujemo načrtovanja in uporabe teh naprav v čim večji meri ozavestiti tudi o ekološkem vidiku teh naprav.

Zaradi tega se v sklopu učnih ur precej časa nameni ekologiji že v fazi načrtovanja naprav. Še več časa pa namenimo obravnavi ekologije pri sami uporabi naprav. Saj moramo celoten proces izpeljati tako, da bo porabljen čim manj energije in proizvedenih čim manj odpadkov. Energijo, ki jo porabimo pa bi morali v čim večji meri pridobiti iz obnovljivih virov energije.

Nastale odpadke pa je potrebno nenehno ločevati in jih nato predati v institucije, ki se ukvarjajo z predelavo teh odpadkov. Ker se pri poučevanju strokovnih modulov ne moremo izogniti odpadkom, se jih moramo naučiti primerno razgraditi, da bomo čim manj obremenjevali okolje.

KLJUČNE BESEDE: ekologija, odpadki, razgradnja, načrtovanje.

INCLUSION OF ECOLOGICAL CONTENT IN THE TEACHING OF MECHANICAL PROCESSING AND AUTOMATION AT THE MARIBOR TECHNICAL SCHOOL CENTER

ABSTRACT

The constant development of humanity and technologies allows us to live a more comfortable life at first glance. On the other hand, rapid development puts a heavy burden on our planet. For this reason, it is necessary to raise awareness of the ecological aspect of these devices as much as possible among the students who are taught to design and use these devices.

For this reason, a considerable amount of time is devoted to ecology during the planning phase of the devices. We spend even more time considering ecology when using the devices themselves. After all, we have to carry out the entire process in such a way that as little energy as possible is consumed and as little waste is produced as possible. The energy we consume should be obtained as much as possible from renewable energy sources.

The resulting waste must be continuously separated and then handed over to institutions dealing with the processing of this waste. Since we cannot avoid waste when teaching professional modules, we must learn to break it down properly in order to minimize the burden on the environment.

KEYWORDS: ecology, waste, decomposition, design.

NASLOV PRISPEVKA: ZAKAJ SO DREVESNA TAKO POMEMBNA?

POVZETEK

Predstavila bom način dela z učenci pri spoznavanju pomena dreves v našem življenju. Z učenci smo si zastavili vprašanje, zakaj so drevesa tako zelo pomembna. Sodelovalo je 8 učencev v okviru ur dodatne strokovne pomoči. Vsak učenec je najprej rešil kviz o gozdu in drevesih. Ugotovili smo, da imajo gozdovi zelo veliko vlogo pri blaženju posledic podnebnih sprememb. Raziskovali smo tudi druge pomembne vloge gozdov. Naš dogovor je bil, da si vsak izmed učencev izbere eno drevo, ki ga bo fotografiral, redno spremljal in nato predstavil. Svoje drevo je potem učenec obiskoval enkrat tedensko ter napisal zgodbo o tem drevesu. Učenci so nato brali zgodbe drug drugega in spoznavali različna drevesa. Ob rednem srečevanju s svojim drevesom so nekateri učenci ugotovili, da se ob drevesu dobro počutijo in da se ob njem umirijo. Lahko se ga dotikajo in se tako povežejo z drevesom. Drevo nam je tudi pomagalo, da smo z njegovo pomočjo izdelovali različne miselne vzorce kot pomoč pri učenju. Omenjene zgodbe pa so učenci nato predstavili tudi v razredu drugim učencem in učiteljem. Zgodbe bom pripravila tudi v tiskani obliki, da jih bodo lahko brali tudi drugi učenci pri urah dodatne strokovne pomoči, kar bo doprinos k izboljšanju pedagoške prakse.

KLJUČNE BESEDE: drevesa, gozd, kviz, zgodbe, učenci.

TITLE: WHY ARE TREES SO IMPORTANT?

ABSTRACT

I will present a way of working with students to learn about the importance of trees in our lives. The students and I asked ourselves the question why trees are so important. 8 students participated in the hours of additional professional help. Each student first solved a quiz about the forest and the trees. We found that forests play a very important role in mitigating the consequences of climate change. We also explored other important roles of forests. Our agreement was that each of the students would choose one tree, which they would photograph, monitor regularly and then present. The student then visited his tree once a week and wrote a story about this tree. The students then read each other's stories and learned about different trees. When meeting their tree regularly, some students realized that they feel good next to the tree and that they calm down next to it. They can touch it and so connect with the tree. The tree also helped us to use it to create different thought patterns as an aid to learning. The students then presented the mentioned stories to other students and teachers in class. I will also prepare the stories in printed form so that other students can also read them during the hours of additional professional help, which will contribute to the improvement of pedagogical practice.

KEYWORDS: trees, forest, quiz, stories, students.

CILJI TRAJNOSTNEGA RAZVOJA KOT NEPOZABNO DOŽIVETJE

POVZETEK

Program »Vzgoja in izobraževanje za trajnostni razvoj«, ki se izvaja pod okriljem Unesca in je bil sprejet z namenom uresničevanja 17 ciljev trajnostnega razvoja, vzpodbuja vključevanje vsebin teh ciljev v učni proces. V sodelovanju z nemško gimnazijo sem poskušala cilje in načine trajnostnega razvoja dijakom približati v praksi, zato je bil potreben temeljit razmislek, kako sestaviti program, ki bo vključeval ustrezne vsebine. V svoji predstavitvi želim predstaviti aktivnosti, s katerimi je bilo mogoče dijake ozavestiti o vsebinah ciljev trajnostnega razvoja, hkrati pa želim predstaviti tudi izzive in vprašanja nekaterih ciljev, s katerimi smo se morali soočiti. Dijaki so dobili priložnost, da pridobijo izkušnje v neposrednem stiku z realnostjo. Poleg refleksije doživetij so dijaki ugotavljali tudi razlike med Slovenijo in Nemčijo na področju trajnostnega razvoja. Znanje pridobljeno v dveh tednih slovensko-nemškega sodelovanja je trajno, predvsem zaradi konkretnih izkušenj in tudi novih prijateljstev, ki so zaradi pozitivnih čustev naredila učni proces učinkovitejši. S pridobljeni znanji se bodo moji dijaki v svoji prihodnosti bolj ozaveščeno in odgovorno trudili uresničevati cilje trajnostnega razvoja.

KLJUČNE BESEDE: trajnostni razvoj, cilji trajnostnega razvoja, izzivi trajnostnega razvoja, sodelovanje z nemško gimnazijo.

THE GOALS OF SUSTAINABLE DEVELOPMENT AS AN UNFORGETTABLE EXPERIENCE

ABSTRACT

The program "Education for Sustainable Development", implemented under the auspices of UNESCO and aimed at achieving the 17 Sustainable Development Goals, promotes the integration of the content of these goals into the educational process. In collaboration with a German grammar school, I attempted to familiarise students with the goals and ways of sustainable development in practice, thus requiring thorough consideration of how to compose a program that would incorporate relevant content. In my presentation, I aim to showcase activities that were able to raise students' awareness of the content of the sustainable development goals, while also addressing the challenges and questions related to some of the goals that we had to confront. Students were given the opportunity to gain experiences through direct contact with reality. In addition to reflecting on their experiences, students also noted the differences between Slovenia and Germany in the field of sustainable development. The knowledge acquired during the two weeks of Slovenian-German collaboration is enduring, primarily due to concrete experiences and the formation of new friendships, which, due to positive emotions, made the learning process more effective. With the acquired knowledge, my students will be more aware and responsible in pursuing the goals of sustainable development in their future endeavours.

KEYWORDS: sustainable development, goals of sustainable development, challenges of sustainable development, collaboration with a German grammar school.

POUČEVANJE KAOSA PRI POUKU MATEMATIKE V KONTEKSTU OBRAVANVE EKOLOŠKIH PROBLEMOV

POVZETEK

Matematika je jezik narave. Z njeno pomočjo modeliramo kar nekaj ekoloških pojavov. Pomembno vlogo ima pri raziskovanju in napovedovanju prihodnosti. Na žalost, je ekološke pojave težko predvideti. Večino pojavov kot so napovedovanje vremena in spreminjaje populacije znotraj manjšega okolja, modeliramo z nelinearnimi enačbami, ki so zelo občutljive na začetne pogoje. Kljub svoji determinističnosti tvorijo popolnoma nepredvidljive rezultate. Ob analiziranju naletimo na kaotično obnašanje. Že samo ime kaos pritegne našo pozornost, kaj šele če se pojavi v zelo rigorozni in striktni vedi kot je matematika. V tem članku bomo na kratko predstavili teorijo kaosa in jo implicirali v realne primere v našem okolju. S tem člankom želimo zanimivo in dijakom neznano matematično področje kot je teorija kaosa interdisciplinarno povezati z ekologijo. Ideje lahko dijakom predstavimo kot popestritev pouka ter jih hkrati opozorimo na nekatere ekološke problematike.

KLJUČNE BESEDE: matematika, matematični kaos, logistična mapa, ekologija.

TEACHING CHAOS IN MATH LESSONS IN CONECTION WITH ECOLOGY RELATED PROBLEMS

ABSTRACT

Math is the language of nature. That is why mathematical modelling plays a central role in studying ecological interactions. In many areas of biology, mathematical models, though important, play a subsidiary role to experimental research. Ecology, however, is different; experiments are often difficult to perform, and field data is often incomplete and hard to interpret. Weather broadcasting or invasions of speaces is modeled by nonlinear equations which are very sensitive to initial conditions. Eventhough we use deterministic equations in our models, we get suprisingly unpredicted results. In reaserches we come across with chaos theory. It is interesting that in mathematics, such strict and predict science aera, exist chaos. In this article we are going to introduce chaos theory and apply it into some real ecology cases. We would like to introduce an unknown part of mathematics to students and connect it with ecology. Ideas can be used as enrichment to mathematical lessons and an introduction to ecology related problematic discussion.

KEYWORDS: mathematics, chaos theory, logistic map, ecology.

KAKOVOST PIVA VARJENEGA Z DODATKOM ODVEČNEGA KRUHA

POVZETEK

Biološki odpadki, med njimi tudi odvečni kruh, po nepotrebnem obremenjujejo naše okolje. Pri preučevanju strokovne literature smo ugotovili, da lahko odvečni kruh uporabimo tudi pri varjenju piva. Na osnovi tega smo na višji šoli Šolskega centra Šentjur zvarili tri serije piva in preverili njihovo senzorično kakovost. Prva serija je bila kontrolna, izdelana samo iz sladno hmeljnega ekstrakta. Drugi seriji smo poleg uporabljenega ekstrakta dodali tudi posušen, grobo drobljen kruh. Tretjo serijo smo izdelali iz polovice sladno hmeljnega ekstrakta, enake količine kruha kot v drugi seriji in ji dodali manjšo količino hmelja. Ugotovili smo, da je bil vol. % alkohola v vseh treh serijah pod pričakovano vrednostjo. Znižanje je verjetno povzročila visoka temperatura okolice med potekom fermentacije. Iz rezultatov senzoričnega ocenjevanja lahko sklepamo, da pivu, varjenemu iz zmanjšane količine sladno hmeljnega ekstrakta in dodatkom odvečnega kruha in hmelja, izboljšamo senzorične lastnosti. Poleg tega se z uporabo te recepture zmanjša strošek surovine in rešuje problematika odvečnega kruha.

KLJUČNE BESEDE: pivo, sladno hmeljni ekstrakt, odvečni kruh, senzorična kakovost.

THE QUALITY OF BEER BREWED WITH THE ADDITION OF EXCESS BREAD

ABSTRACT

Biodegradable waste, including excess bread, puts unnecessary stress on the environment. While researching the literature, we found that excess bread can also be used in the production of beer. Because of this, three batches of beer were brewed at the Šolski center Šentjur and their sensory quality was checked using the blind tasting method. The first batch was a control batch, made only from hopped malt extract. In the second batch, dried and coarsely crushed bread was added in addition to the extract used. The third batch was made with half of the hopped malt extract, the same amount of bread as in the second batch and a small amount of hops was also added to it. We found that the alcohol by volume in all three batches was below the expected value. We assume that this decrease was caused by high ambient temperature during fermentation. We found that using a reduced amount of hopped malt extract for the brew, with the addition of excess bread and hops, results in a beer with improved sensory properties. In this way, we reduce the cost of raw materials and take a step in the right direction to solving the problem of excess bread.

KEYWORDS: beer, hopped malt extract, excess bread, sensory quality.

OZAVEŠČANJE POMENA LOČEVANJA ODPADKOV S PODPORO UČNIH NAČRTOV

POVZETEK

Vplivi na okolje, gospodarstvo in družbo so razlogi, ki spodbujajo k ločevanju odpadkov. Recikliranje zahteva manj energije kot pridobivanje novih surovin in prispeva k ohranjanju gozdov in vod. Naloga učiteljev je izobraževanje in ozaveščanje tudi o tej pereči problematiki. Pri tem učiteljem pomagajo obstoječi učni načrti in vzpostavljen sistem ločevanja odpadkov v šoli, ki učencem pomaga pri učenju pravilnega ločevanja odpadkov ter jim pomaga pridobiti ali ohraniti trajnostne navade tudi doma. Celostni pristop pri izobraževanju o ločevanju odpadkov lahko pomaga oblikovati trajnostno miselnost pri učencih. Kljub temu, da so največji onesnaževalci zaradi obsega industrije, prometa in energetske porabe Kitajska, Združene države Amerike in Indija, ni zanemarljiv odstotek odpadkov, ki jih posamezniki ustvarimo v gospodinjstvih. Izobraževalne institucije, poleg medijev, nevladnih organizacij, lokalnih komunalnih podjetij, Agencije Republike Slovenije za okolje in Ministrstva za okolje in prostor, pomembno prispevajo k oblikovanju ozaveščenosti učencev glede pomena in načina ločevanja odpadkov. Namen pričujočega prispevka je opozoriti na pomen posameznika in vzgojno-izobraževalnih institucij pri ozaveščanju o pomenu ločevanja odpadkov ter samem ločevanju odpadkov. V prispevku je s pomočjo mesečnega opazovanja in natančnega beleženja ločevanja šolskih odpadkov predstavljeno ugotovljeno stanje v praksi med učenci z lažjo motnjo v duševnem razvoju tretjega vzgojno-izobraževalnega obdobja prilagojenega programa Centra Janeza Levca Ljubljana, ter možnosti izboljšav in akcij s podporo obstoječih učnih načrtov predmetov v Prilagojenem programu z nižjim izobrazbenim standardom.

KLJUČNE BESEDE: ločevanje odpadkov, ozaveščenost, recikliranje, učni načrt.

PROMOTING THE SIGNIFICANCE OF WASTE SEPARATION THROUGH THE SUPPORT OF EDUCATIONAL CURRICULA

ABSTRACT

The impacts on the environment, economy, and society are reasons that encourage waste separation. Recycling requires less energy than obtaining new raw materials and contributes to the preservation of forests and water. The task of teachers is to educate and raise awareness about this pressing issue. Existing curricula and an established waste separation system in schools assist teachers in teaching students proper waste separation and help them acquire or maintain sustainable habits even at home. A comprehensive approach to education about waste separation can help shape a sustainable mindset among students. Despite the fact that the largest polluters, due to the scale of industry, traffic, and energy consumption, are China, the United States, and India, there is a significant percentage of waste generated by individuals in households. Educational institutions, in addition to the media, non-governmental organizations, local municipal companies, the Slovenian Environment Agency, and the Ministry of the Environment and Spatial Planning, play a crucial role in shaping students' awareness of the importance and method of waste separation. The purpose of this contribution is to highlight the importance of individuals and educational institutions in raising awareness about the importance of waste separation and the act of waste separation itself. The article, with the help of monthly observations and precise note-taking of waste separation in school, presents the observed situation in the third educational period of the adapted education programme among students with lower performance criteria at the Special Education Centre Janez Levec Ljubljana. It also discusses possibilities for improvements and actions with the support of existing subject curricula in the Adapted Program with a lower educational standard.

KEYWORDS: waste separation, awareness, recycling, educational curriculum.

PREIZKUSIMO SE V KROŽNEM GOSPODARSTVU

POVZETEK

Že nekaj let lahko spremljamo podatke o odpadni embalaži in tekstilu, v zadnjem času pa je govora tudi o recikliranju oziroma ponovni uporabi odpadnih surovin.

Namen prispevka je opisati oziroma prikazati način seznanjanja dijakov s krožnim gospodarstvom. Da bi dijake seznanili z nujnostjo ločevanja odpadkov, smo si ogledali bližnji center za ravnanje z odpadki ter obiskali trgovino z rabljenimi oblačili. V svojo idejo sodelovanja v kroženju odpadnih surovin oziroma materialov so dijaki poizkušali vložiti čim manj novega materiala in uporabiti čim več odpadnega ter iz njega narediti nekaj novega. Razvijanje idej jih je pripeljalo do kreativnega okolja, v katerem so lahko prepoznali sebe kot nekoga, ki zna razmišljati krožno.

Dijak so oblačila, ki jih ne nosijo več, napolnili s slamo in na šolskih hodnikih postavili zanimivo jesensko dekoracijo, ki se je glede na časovno dogajanje spreminjala in dopolnjevala z odpadnim tekstilom in ostalimi materiali. Iz odpadne embalaže jim je uspelo izdelati oblačila, klobuk in sneženega moža. Dijaki so izdelke ustvarjali več mesecev in so bili s svojimi inovativnimi kreacijami zadovoljni. S postavitvijo le-teh na šolske hodnike so ozaveščali o možnosti kroženja odpadnih materialov oziroma izdelkov tudi ostale dijake. S takim pristopom omogočamo dijakom, da oblikujejo svoje vrednote, ki bodo med drugim prispevale k varovanju in ohranjanju narave, kar je neprecenljiva dolgoročna naložba v prihodnost.

KLJUČNE BESEDE: odpadna embalaža, kreiranje, ozaveščanje.

LET'S TEST OURSELVES IN THE CIRCULAR ECONOMY

ABSTRACT

For several years now, we have been able to track data on waste packing and textiles. Recently, there has also been talk about recycling or reusing waste material.

The purpose of the contributions is to describe or demonstrate the way students are introduced to the circular economy, where we visited a nearby Waste Management Centre and emphasized the importance of waste separation. We also visited the Human Vintage clothing store. With the idea of participating in the circulation of waste materials, the students tried to use as little new material as possible and utilize as much waste material as possible to create something new. Developing these ideas lead them to a creative environment where they could be recognized as individuals capable of circular thinking.

Clothes they no longer wore, were filled with straws and used to create interesting autumn decorations in the school hallways, which evolved over time by adding waste textiles and other materials. They managed to make clothes, hats and even a snowman from waste packaging and created Christmas ornaments from old shirts. The students worked on these projects for several months and are satisfied with their innovative creations. By exhibiting them in the school hallways, they raised awareness about the possibilities of recycling waste materials of products. This approach allows students to sharpe their values, which will, among other things, contribute to the protection and preservation of nature and invaluable long-term investment in the future.

KEYWORDS: waste packaging, creation, recycling awareness.

RAST PREBIVALSTVA, VREME IN GOSPODARNA RABA VODE PRI POUKU MATEMATIKE

POVZETEK

V srednji šoli pri pouku matematike pogosto obravnavamo vsebine iz ekologije. Z modeliranjem opisujemo primere kot so rast prebivalstva z logistično funkcijo, povprečne mesečne temperature za mesto Celje s sinusno funkcijo in gospodarno rabo vode z linearno funkcijo. Z dijaki se pogovarjamo o globalnem segrevanju, pogledamo napovedi in se vprašamo, kako lahko vplivamo k blaženju podnebnih sprememb. Preprost primer gospodarne rabe vode nam pokaže, da štejejo že majhni koraki. Z dijaki izračunamo, koliko vode lahko privarčujemo pri ščetkanju zob, če imamo v času umivanja pipo odprto le do polovice, v primerjavi če je pipa popolnoma odprta. Doprinos tovrstnega matematičnega modeliranja je v tem, da omogoča razumevanje in analiziranje ekoloških vsebin ter napovedovanje njihovega vedenja na podlagi matematičnih formul in konceptov. Mladostnike hkrati ozaveščamo o aktualni problematiki.

KLJUČNE BESEDE: modeliranje, rast prebivalstva, globalno segrevanje, gospodarna raba vode.

POPULATION GROWTH, WEATHER AND EFFICIENT USE OF WATER IN MATHEMATICS LESSONS

ABSTRACT

We often cover topics from ecology in mathematics lessons in grammar school. We use modelling to describe examples such as population growth with a logistic function, average monthly temperatures for the town of Celje with a sinusoidal function and efficient use of water with a linear function. We talk with the students about global warming, examine the forecasts and ask ourselves how we could influence the mitigation of climate change. A simple example of efficient use of water shows us that even small steps count. With students we calculate how much water can be saved when brushing teeth, if we only have the tap open up to half at the time of brushing, compared if the faucet is fully open. The contribution of this kind of mathematical modelling is that it enables understanding and analysing ecological contents and predicting their behaviour based on mathematical formulas and concepts. At the same time, we raise awareness of current issues among adolescents.

KEYWORDS: modelling, population growth, global warming, efficient use of water.

OKOLJU PRIJAZNO PRI POUKU ANGLEŠČINE

POVZETEK

Okoljska problematika in podnebne spremembe so postale del našega vsakdanjega življenja. Prispevek predstavi, kako se dijaki v gimnazijskem programu pri pouku angleščine učijo o pomenu skrbi za okolje in tako vplivajo na svoje življenje in na življenja prihodnjih generacij. Mnogi med njimi so na lastni koži izkusili silo divjanja narave in njene posledice. Z uporabo besedil v učbeniku English File Upper-intermediate dijaki že znano besedišče obnovijo in utrdijo. Pri tem uporabijo vse štiri jezikovne spretnosti (branje, poslušanje, govorjenje, pisanje). Predvsem z izražanjem lastnega mnenja bodisi v obliki dialoga ali pisni obliki se naučijo kritično razmišljati o svoji vlogi in odgovornosti do okolja. Z uporabo dodatnega gradiva o ekoloških problemih svoje besedišče nadgradijo. Ugotovijo, da so težave, s katerimi se soočajo, skupne vsem na planetu. S provokativnimi trditvami o tem, kaj lahko sami storijo za boljše okolje, so izzvani, da podajo svoje mnenje. Učitelj z izborom gradiva dijake poskuša pripeljati do pomembnih spoznanj o tem, v kakšnem okolju želijo živeti in jih spodbuditi, da postanejo aktivni. Doprinos prispevka je tako spoznanje, da vsako dejanje šteje in da je glas mladih pomemben. Dijaki z aktivno udeležbo vplivajo na lastno prihodnost in tako prevzamejo odgovornost, kar je vrednota, ki je v modernem svetu redka.

KLJUČNE BESEDE: okolju prijazno, odgovornost, aktivna udeležba.

ENVIRONMENTALLY FRIENDLY IN ENGLISH CLASSES

ABSTRACT

Environmental problems and climate change have become a part of our everyday life. This paper presents a teaching example of how high school students learn in English classes about the importance of taking care of the environment and so influence their lives and the lives of the future generations. Many of them have personally witnessed the wild force of nature and its consequences. By using the materials in the coursebook English File Upper-intermediate, the already acquired vocabulary is revised. All four language skills are used (reading, listening, speaking, writing). Students express their own opinion, either in a form of a dialogue or by writing an essay and thus start critically thinking about their role and their responsibility towards the environment. With the use of additional materials their vocabulary is improved. They realise that the problems they are facing are the problems of our planet. They are given provocative statements and are thus challenged to express their opinion. The role of a teacher is definitely an important one, because with the chosen materials students reach important conclusions about the world they want to live in and are encouraged to become active. Students realise that every action counts and that the voice of the young matters. With active participation they take the responsibility for their own future. The responsibility which is a rare value in the modern world.

KEYWORDS: environmentally friendly, responsibility, active participation.

Z MAJHNIMI KORAKI DO OHRANJANJA PLANETA

POVZETEK

Skrb za okolje, v katerem bivamo, je odgovornost vsakega izmed nas. Nanjo se lahko odzovemo različno, in sicer le z opazovanjem, morda z besedami ali pa svoja opažanja in skrb podkrepimo z dejanji. Namen pričujočega prispevka je predstaviti, da se z majhnimi in drobnimi spremembami lahko naredi veliko za lepši in čistejši planet. Na naši šoli smo pred leti sprejeli odločitev, da želimo načrtno in zavestno spremeniti navade in običaje tako zaposlenih kot tudi učencev ter posledično prispevati k ozaveščanju trajnostne mobilnosti in čistejšega kraja. Smo podeželska šola, zato je vsaka novost kmalu opažena. V svojem delovanju se zavedamo, da morajo biti besede aktivno podkrepjene z dejanji, zato smo svojo vizijo za čistejši in trajnostni način zapisali tudi v Letni delovni načrt šole. Kot primer dobre prakse naj omenim le nekatere. Te so ekološke aktivnosti, tehniški dan kot Eko dan, eko vrtovi, skrb za okolico šole in tradicionalni slovenski zajtrk.

S svojimi odločitvami smo najprej spremenili svoje navade. Prvi korak, ki smo ga sprejeli, je bila zamenjava papirnatih brisačk z eko brisačkami ter zmanjšanje papirja za namen kopiranja. Sledila je načrtna izdelava izdelkov iz okolju prijaznih materialov, ponovna uporaba že uporabljenih materialov s pridihom nove, sveže uporabe. Z idejami smo prinesli nov, svež in drugačen pogled najprej kolektivu in učencem, posledično staršem ter krajanom. Njihov prispevek in sodelovanje sta vidna v skrbi za čisto ohranjanje kraja, ločevanju odpadkov, zbiranju papirja ipd. V sodelovanju s krajem dvakrat letno organiziramo zbiralno akcijo papirja, enkrat letno pa čistilno akcijo širše okolice šole.

KLJUČNE BESEDE: zglede, ločevanje, vzgoja, odgovornost, osveščanje.

WE ARE PRESERVING THE PLANET WITH SMALL STEPS

ABSTRACT

Caring for the environment where we live is the responsibility of every individual. We can respond to environmental challenges in different ways, namely with observation, potentially with words, or we underline our observations and concern with actions. The purpose of this article is to demonstrate that with small and incremental steps, much can be done for a more beautiful and cleaner planet.

At our school, we made a decision years ago that we want to systematically and consciously change the habits and customs of both employees and students, and as a result contribute to raising awareness of sustainable mobility and a cleaner environment. We are a rural school, so any novelty is soon noticed. In our operations, we are aware that rhetoric must be actively supported by actions. For this reason we articulated our vision for a cleaner and more sustainable program in the school's Annual Work Plan. Allow me to mention only a few examples of good practices which includes ecological activities, a special day assigned as Eco Day, eco gardens, caring for the school's surroundings, and a traditional Slovenian breakfast.

Our first decision was to change our own habits. The first step we took included the replacement of paper towels with eco towels and reduction of copied materials, the planned production of products from environmentally friendly materials, and the reuse of old materials creatively applied. These ideas brought a new perspective to our colleagues and students, and consequently to parents and local residents. Their contribution and cooperation can be seen in keeping the place clean, recycling waste, collecting paper, etc. In cooperation with the local authority, we organize twice a year a paper collection campaign, as well as a cleaning campaign around the school once a year.

KEYWORDS: example, recycling, education, responsibility, awareness.

»ČUFARJEVI ZELENI KORAKI« ZA VEČJO TRAJNOSTNO MOBILNOST OTROK IN ZAPOSLENIH

POVZETEK

Doseči ravnotežje med mobilnostjo in varovanjem okolja v današnjem času, še vedno predstavlja izziv skupnosti, v kateri živimo. Zavedanje vpliva naših prevoznih navad na planet ter sprejemanje naravi prijaznih načinov potovanja, so pomembne osnove ozaveščanja otrok in mladostnikov.

Namen prispevka je predstaviti primere dobrih praks usmerjanja vseh učencev šole, njihovih staršev ter zaposlenih k trajnostno naravnanim prihodom v šolo. V letih 2019-2020 smo se priključili k projektom trajnostne mobilnosti, razpisanih s strani različnih državnih institucij. Opazili smo, da so aktivnosti učencem zanimive, vendar je njihov učinek trajal le v času izvajanja projekta. Kasneje je zanimanje učencev in zaposlenih, skupaj z izvedenimi aktivnostmi, zamrlo. S pomočjo raziskave o trajnostni mobilnosti, smo določili trajnostno naravnane aktivnosti, ki smo jih vključili v razvojni načrt šole. Osnovali smo šolski projekt »Čufarjevi zeleni koraki«, kjer učenci beležijo naravi prijazne prihode v šolo skozi celo šolsko leto. Mala šola kolesarjenja, Kolesarjem prijazna šola ter projektno naravnano mednarodno sodelovanje spodbujanja trajnostne mobilnosti, so aktivnosti, s katerimi smo naredili konkretne premike k varovanju okolja. Delež učencev, ki prihaja v šolo na naravi prijazen način, se je v dveh letih povečal za 65 %. Učenci razvijajo odgovoren odnos do okolja, zdravega načina življenja. Pridobivajo pomembne izkušnje, ki postajajo trajno oblikovane navade. Počasi, vendar vztrajno »korakamo« k zastavljenemu cilju – zmanjšanju motornega prometa v okolici šole.

KLJUČNE BESEDE: trajnostna mobilnost, varovanje okolja, naravi prijazni prihodi v šolo, projektno delo.

»ČUFAR'S GREEN STEPS« FOR GREATER SUSTAINABLE MOBILITY OF CHILDREN AND EMPLOYEE

ABSTRACT

Achieving a balance between mobility and protecting the environment today is still a challenge for the community in which we live. Awareness of the impact of our transport habits on the planet and acceptance of nature-friendly ways of travel are important bases for raising awareness among children.

The purpose of the paper is to present examples of good practices in guiding all school students, their parents and employees towards a sustainable arrival at school. In 2019-2020, we joined the sustainable mobility projects tendered by various state institutions. We noticed that the activities were interesting to the students, but their effect lasted only during the implementation of the project. Later, the interest of students and employees; along with the activities carried out, died down. With the help of research, we determined sustainable activities, which we included in the school's development plan. We founded the school project "Čufar's Green Steps", where students record nature-friendly arrivals at school. A Small cycling school, a Cyclist-friendly school and project-oriented international cooperation promoting sustainable mobility are activities that have made concrete moves towards protecting the environment. The proportion of students who come to school in a nature-friendly way increased by 65 % in two years. Students develop a responsible attitude towards the environment and a healthy lifestyle. They gain important experiences that become permanently formed habits. We are slowly but steadily "stepping" towards the set goal - reducing motor traffic around the school.

KEYWORDS: sustainable mobility, environment protection, nature-friendly arrivals at school, project work.

AVTOMATIZACIJA 3D KOORDINATNEGA MERILNEGA STROJA

POVZETEK

Na ŠC Ptuj smo vzpostavili prakso, kjer dijaki programa Tehnik Mehatronike za zaključno nalogo četrtega predmeta poklicne mature izdelajo izdelek ali opravijo storitev v šolskem okolju. V mojem strokovnem prispevku predstavljam projekt, ki se je osredotočal na prenovo obstoječega koordinatnega merilnega stroja. Gre za napravo, namenjeno merjenju geometrijskih lastnosti tridimenzionalnih objektov. Cilj projekta je bil avtomatizacija koordinatnega merilnega stroja za merjenje dimenzij luknje objekta. Naš prvotni koordinatni merilni stroj je izgubil uporabno vrednost, saj je deloval v ročnem načinu s starim računalnikom, ki je izvajal izračune in podajal podatke iz merilnega sistema. Dijaka sta izdelala termiski plan, opravila analizo obstoječega stanja in preučila možnosti za električni pogon posameznih osi ter avtomatizacijo merilnega procesa. Po natančni analizi smo se odločili za pogon osi s koračnimi motorji, torej za odprto-zančno vodenje posameznih osi, pri čemer smo uporabili CNC krmilnik slovenskega proizvajalca. Kandidata sta uspešno izpeljala projekt, pri čemer sta izkazala praktična znanja in poklicne kompetence, pridobljene v strokovnih modulih. Poseben poudarek je bil na trajnostnem vidiku, saj smo revitalizirali že odpisan stroj, mu povrnili uporabnost in s tem prispevali k zmanjšanju odpadkov. Končni rezultat, avtomatiziran koordinatni merilni stroj, zdaj služi kot učilo v okviru določenega strokovnega modula ter kot primer dobre prakse v učne namene.

KLJUČNE BESEDE: izdelek ali storitev, 3D koordinatni merilni stroj, CNC krmilnik.

AUTOMATION OF 3D COORDINATE MEASURING MACHINE

ABSTRACT

At ŠC Ptuj, students in the Mechatronics Technician program undertake a final assignment by creating a product or service within the school environment. In my professional project, I focused on renovating an existing coordinate measuring machine, designed for assessing the geometric properties of three-dimensional objects. The project aimed to automate the machine for measuring hole dimensions in objects. The original machine operated manually with an outdated computer, rendering it obsolete. The students devised a schedule, conducted a thorough analysis, and explored options for electrically driving individual axes and automating the measurement process. After careful consideration, we opted for stepper motors to drive the axes, employing open-loop control and a CNC controller from a Slovenian manufacturer. The candidates successfully completed the project, showcasing practical knowledge and professional competencies gained in their modules. Significantly, the project emphasized sustainability by revitalizing an otherwise discarded machine, reducing waste. The automated coordinate measuring machine now serves as a teaching tool for a specific professional module, offering a practical example of good practice for educational purposes.

KEYWORDS: product or service, 3D coordinate measuring machine, CNC controller.

SODELOVALNO POUČEVANJE ZA ŽIVLJENJE NA EKOLOŠKEM POSESTVU

POVZETEK

V duhu globalizacije se v sistem vzgoje in izobraževanja vnaša nove izzive in priložnosti poučevanja tako v domačem kot tudi v tujem okolju. V luči omenjenega si želimo, da znanje, ki ga imamo, predamo mlajšim generacijam in jih opremimo s tistim znanjem, ki ga bodo za svojo stroko in življenje najbolj potrebovali. Pedagogi iščemo rešitve, kako bomo znanje predali, in zato mnogi uporabljajo različne načine poučevanja, kot so tako imenovano timsko poučevanje, sodelovalno poučevanje in interdisciplinarno poučevanje. Vsem načinom, ki so nasprotje frontalnemu podajanju snovi, je skupno, da pri mladih spodbujajo več sodelovanja, samostojnosti in raziskovanja. V Biotehniškem centru Naklo že nekaj let v sklopu nižjega poklicnega izobraževanja v urniku načrtujemo timsko poučevanje. Tako sta pri pouku prisotna dva učitelja, ki si delita uro in si medsebojno pomagata tako z vzgojo kot tudi s poučevanjem. Hkrati s takim načinom poučevanja v praktičnih modulih krepimo poučevanje za življenje ter teorijo krepimo s praktičnim delom. V januarju smo poleg timskega poučevanja pri večinoma praktično naravnem modulu Pridelava in uporaba zelišč uporabili znanje matematike in zmešali čajno mešanico Hihitavček, ki vsebuje ekološka zelišča. Pri mešanici čaja smo si pomagali z matematičnimi vsebinami, ki so dijakom pri samostojnem delu delale težave. Pri sodelovalnem delu so prišli do pravih rešitev (10 dijakov ali 100 % vprašanih). Po mnenju vprašanih dijakov so ta dan pridobili kompetence, kot so sodelovalno delo, kritično razmišljanje, odgovornost, reševanje konfliktov in samozavest. Zavedamo se, da za bolj natančen pregled kako sodelovalno delo ali poučevanje vpliva na znanje za življenje bi bilo potrebno izvesti raziskave na večjem številu udeleženi.

KLJUČNE BESEDE: sodelovalno poučevanje ali učenje, ekološka zelišča, pridelava in uporaba zelišč.

TEAM TEACHING FOR LIFE ON ORGANIC FARM

ABSTRACT

In the spirit of globalisation, new challenges and opportunities for teaching in both home and foreign settings are being introduced into the education system. In the light of this, we want to pass on the knowledge we have to the younger generations and equip them with the knowledge they will need most for their profession and their lives. We educators are looking for solutions to how we are going to pass on knowledge, and thus many are using different teaching methods, such as so-called team teaching, collaborative teaching and interdisciplinary teaching. All different ways of teaching that are opposed to the frontal teaching or instruction have in common to encourage more cooperation, autonomy and research among young people. We have been planning team teaching at the Biotechnical Center Naklo for several years now as part of the short-term vocational education schedule. In this way, two teachers are present in the classroom, sharing a lesson and helping each other through both education and teaching. At the same time as teaching is done in practice modules, we strengthen teaching for life and with that we also strengthen theory with practical work. In January, in addition to team teaching in a mostly practice module called The production and use of medicinal plants we also used mathematical knowledge in preparing the tea mixture Hihitavček, which contains organic plants. This presented problems for the students independently, but while cooperating they came up with correct results. (10 pupils equals 100 % respondents). According to the students interviewed, they acquired competences such as collaborative work, critical thinking, responsibility, conflict solving and self-confidence. We are aware that in order to have a more accurate overview of how collaborative work or teaching affects knowledge for life, research should be carried out on a larger number of participants.

KEYWORDS: team teaching or education, organic medicinal plants, gathering and production of medicinal plants.

GLOBALNO DRŽAVLJANSTVO PRI POUKU ANGLEŠČINE

POVZETEK

Prispevek predstavlja projektno delo pri pouku angleščine, v prvem letniku srednjega strokovnega programa predšolska vzgoja. Tema, ki jo obravnavamo v prvi enoti so svetovni problemi, problemi, ki se tičejo prebivalcev vsega sveta: onesnaženje oceanov, predsodki, ogrožene živalske vrste, otroško delo, neetična proizvodnja oblačil, revščina in življenje v slumih. Ker so našete teme zahtevne za razumevanje, še posebej v angleškem jeziku, sem se odločila teme predelati v obliki projektnega dela. Cilji projektnega dela so poglobljeno razumevanje tematike, razvijanje veččin timskega dela, utrjevanje osnovnih slovničnih struktur in krepitev veččin računalniške pismenosti.

Dijaki so ob koncu projektnega dela izvedli predstavitev, kjer so podrobno predstavili obravnavano temo. Govorili so prosto in odgovarjali na vprašanja poslušalcev. S tem so pokazali, da razumejo obravnavano temo. Del njihove naloge je bil posneti krajši in daljši video posnetek ter oblikovati logotip. S tem so urili veččine računalniške pismenosti ter svojo kreativno plat. Na koncu so pripravili še poročilo v wordu in predstavitev v poljubnem programu. Nenazadnje, a morda najpomembneje za bodočega vzgojitelja, krepili so mehke veščine. Sami so se dogovorili, kako bo delo potekalo in kdo bo odgovoren za kaj. Večina skupin je s tem delom opravila odlično.

KLJUČNE BESEDE: projektno delo, globalni državljan, ekologija, vzgojitelj predšolskih otrok.

GLOBAL CITIZENSHIP IN ENGLISH LANGUAGE TEACHING

ABSTRACT

The paper represents a project work in the English class, in the first year of the vocational program for preschool education. The theme addressed in the first unit is global issues that concern people worldwide: ocean pollution, prejudices, endangered species, child labour, poverty, unethical production of clothes and life in slums. As numerous topics are challenging to understand, especially in the English language, I decided to transform the themes into the form of project work. The objectives of the project work include a deep understanding of the topics, the development of teamwork skills, reinforcement of basic grammatical structures, and strengthening computer literacy skills.

At the end of the project work, the students conducted a presentation where they detailed the discussed theme. They spoke freely and answered questions from the audience, demonstrating their understanding of the topic. Part of their task was to record a short and long video and design a logo, thereby honing their computer literacy skills and showcasing their creativity. Finally, they prepared a report in Word and a presentation in any program of their choice. Last but not least, and perhaps most importantly for future educators, they strengthened their soft skills. They independently organized how the work would proceed and assigned responsibilities. The majority of the groups excelled in this task.

KEYWORDS: project work, global citizen, ecology, kindergarten teacher.

VPLIV PODNEBNIH SPREMEMB NA GOSPODARSTVO

POVZETEK

V prispevku so predstavljeni glavni vplivi podnebnih sprememb na gospodarskem področju, kot pregled literature s tega področja. Izpostavljeni sta primarni gospodarski dejavnosti, kmetijstvo in energetika, kot dejavnosti, ki vplivata na večino drugih gospodarskih dejavnosti, na življenje ljudi ter na družbo nasploh. Kmetijstvo je posebej ranljivo zaradi višanja temperatur, ekstremnih vremenskih dogodkov, ter ukrepov, ki jih želijo sprejeti države v želji omilitve posledic podnebnega segrevanja. Vse posledice niso negativne, je pa teh več kar napoveduje zvišanje stroškov v kmetijstvu za 10 do 20%. Področje energetike, ki je velik krivec za nastale podnebne spremembe, je dejavnost, ki se zelo spreminja in se bo spreminjala zaradi posrednih in neposrednih posledic podnebnih ukrepov. Evropa v zavezi zmanjšanja izpustov toplogrednih plinov za 55% do 2030, stremi k povečanju proizvodnje energije iz zelenih virov. Vse te spremembe pa že vplivajo in še bodo vplivale na rast cen energije, kar pa vpliva na rast v ostalih gospodarskih dejavnostih. Pri iskanju rešitev so v prispevku prikazani tudi ukrepi republike Slovenije, ki temeljijo na smernicah Zelenega dogovora. V zadnjem delu prispevka je predstavljeno tudi področje turizma in prometa v povezavi s podnebnimi spremembami. Podnebne spremembe in njihov vpliv na gospodarstvo je del naše realnosti, zato je nujna vpeljava in razmišljanje o tej temi v šolskem prostoru.

KLJUČNE BESEDE: podnebne spremembe, kmetijstvo, energetika, promet, zeleni dogovor.

THE IMPACT OF CLIMATE CHANGE ON THE ECONOMY

ABSTRACT

The paper presents the main impacts of climate change in economic field, as a review of literature in this field. Primary economic activities, agriculture and energy, are highlighted as activities that influence most other economic activities, people's lives and society in general. Agriculture is particularly vulnerable to rising temperatures, extreme weather events, and measures that countries want to take to mitigate the effects of climate warming. Not all consequences are negative, but there are more of them, which predicts an increase in agricultural costs of 10 to 20%. The field of energy, which is a major culprit in climate change that has occurred, is an activity that is changing dramatically and will change due to the direct and indirect consequences of climate action. Europe in its reduction commitment to reduce greenhouse gas emissions by 55% by 2030, Europe aims to increase energy production from green sources. All these changes are already having and will have an impact on the rise in energy prices, which in turn affects growth in other economic activities. In the search for solutions, the paper also shows the measures of the Republic of Slovenia, which are based on guidelines of the Green Deal. The last part of the paper also present the field of tourism and transport in connection with climate change. Climate change and its impact on the economy is part of our reality, so it is necessary to introduce and think about this topic in the school environment.

KEYWORDS: climate change, agriculture, energy, transport, Green deal.

UČITELJEVA VLOGA PRI PREPREČEVANJU EKOANKSIOZNOSTI PRI UČENCIH

POVZETEK

Podnebne spremembe so iz leta v leto bolj očitne, ekstremni vremenski pojavi so vse pogostejši. Mnogi ljudje se sprašujejo, kakšen bo svet v prihodnosti. Vse pogosteje se v zvezi s tem pojavlja tudi pojem ekoanksioznost (tudi podnebna anksioznost). Ekoanksioznost označuje stisko ljudi ob dejstvu, da se okolje spreminja in propada. Ta strah nanje vpliva tako močno, da ne uživajo več v vsakdanjem življenju. Z učenci 4. razreda smo se zato najprej pogovarjali o podnebnih spremembah in prihodnosti, ki nas čaka. Dobili so priložnost, da izrazijo in ubesediijo strahove in skrbi, povezane s podnebnimi spremembami. Pogovarjali smo se, ali so te strahovi koristni in v kakšni meri. Iskali smo načine za soočenje s temi strahovi. Pri tem sem se osredotočala na vse tehnike, ki koristijo pri soočanju z običajno anksioznostjo. V prispevku so kot načini za spoprijemanje z ekoanksioznostjo podrobneje predstavljeni trije načini, ki jih po potrebi vključujem v pouk. To so pogovor z učenci, čuječnost in osmišljanje izvajanja ekoloških vsebin. Učenci so tako spoznali in izkusili tehnike za soočanje z ekoanksioznostjo, ki jih bodo lahko uporabljali, ko jih bodo potrebovali. Namen prispevka je predstaviti načine, kako otrokom približati ekološke vsebine v razredu z zavedanjem, da lahko kateri od otrok doživlja ekoanksioznost (ali pa jo še bo).

KLJUČNE BESEDE: podnebne spremembe, ekoanksioznost, podnebna anksioznost, strah, čuječnost.

THE TEACHER'S ROLE IN PREVENTING ECO-ANXIETY IN STUDENTS

ABSTRACT

Climate change is becoming increasingly evident year by year, with extreme weather events occurring more frequently. Many people are wondering what the world will be like in the future. The concept of eco-anxiety (also known as climate anxiety) is becoming more prevalent in connection with this. Eco-anxiety refers to the distress people feel due to the changing and deteriorating environment. This fear affects them so profoundly that they no longer enjoy everyday life. With fourth-grade students, we discussed climate change and the future that awaits us. They were given the opportunity to express and articulate their fears and concerns related to climate change. We discussed whether these fears are useful and to what extent. We searched for ways to face these fears. I focused on all the techniques that are useful in dealing with common anxiety. In the article, three methods are presented in more detail as ways to deal with eco-anxiety, which I include in the lessons if necessary. These are conversations with students, mindfulness and making sense of the implementation of ecological content. The students became familiar with and experienced techniques for dealing with eco-anxiety, which they will be able to use when they need them. The purpose of the article is to present ways to introduce ecological content to children in the classroom with the awareness that some of the children may be experiencing eco-anxiety (or will in the future).

KEYWORDS: climate change, eco-anxiety, climate anxiety, fear, mindfulness.

SPOZNAVANJE EKOLOŠKIH VSEBIN NA PODRUŽNIČNI OSNOVNI ŠOLI SKOZI PROJEKTNE NALOGE

POVZETEK

Eden izmed učinkovitih pristopov za razvijanje temeljne ekološke ozaveščenosti v nižjih razredih osnovne šole je uvedba projektov, ki učencem omogočajo praktično izkušnjo in neposreden stik z okoljem. V besedilu bom predstavila primere dobrih praks, s katerimi na naši podružnični šoli uspešno spoznavamo ekološke vsebine skozi projektne naloge. Predstavljene aktivnosti izvajamo zadnja tri šolska leta. Pomemben poudarek dajemo lokalnemu okolju in specifičnim izzivom, ki jih prinaša, saj se učenci naučijo ceniti in skrbeti za svoje naravno okolje. Najbolj aktivni smo v projektu Planetu Zemlja prijazna šola, pri katerem si na šolskih vrtičkih prizadevamo pridelati lastna zelišča in nekatere vrtnine ter jih uporabiti v šolski kuhinji. Posebno pozornost namenjamo varstvu živali. V sodelovanju s Sadjarskim društvom in lokalnim mizarjskim podjetjem skrbimo za ptice v šolskem sadovnjaku, lovci pa nam predstavijo pomen varovanja gozdnih živali pozimi. Skozi projekt Simbioza skupnost preko aktivnosti z ekološkimi vsebinami spodbujamo medgeneracijsko sodelovanje in povezovanje. V sodelovanju s starejšimi krajanji ob različnih priložnostih ustvarjamo izdelke iz recikliranih materialov. V aktivnostih projekta društva Sobivanje učence usmerjamo v razvoj trajnostno naravnane, zdrave družbe. Pripravljamo različne zdrave prigrizke iz sezonskih in lokalnih sestavin ter pridelke s šolskih vrtičkov. Z navedenimi aktivnostmi podpiramo trajnostne prakse, ozaveščamo o pomenu skrbi za okolje ter pri učencih spodbujamo vzpostavljanje zdravih prehrabnih navad.

KLJUČNE BESEDE: ekološke vsebine, skrb za naravno okolje, projektne naloge, aktivni učenci.

EXPLORING ECOLOGICAL TOPICS AT THE BRANCH PRIMARY SCHOOL THROUGH PROJECT TASKS

ABSTRACT

One of the effective approaches to develop fundamental ecological awareness in lower grades of elementary school is the introduction of projects that provide students with practical experience and direct contact with the environment. In this text, I will present examples of good practices through which our branch school successfully introduces ecological content through project tasks. These activities have been carried out in the last three school years. We place significant emphasis on the local environment and its specific challenges, as students learn to appreciate and care for their natural surroundings. We are most active in the "Planetu Zemlja prijazna šola" project, where we cultivate our own herbs and some vegetables in the school gardens and use them in the school kitchen. Special attention is given to animal welfare. In collaboration with the orchard association Sadjarsko društvo and a local carpentry company, we take care of birds in the school orchard, and hunters educate us about the importance of protecting forest animals in winter. Through the "Simbioza skupnost" project, we encourage intergenerational collaboration and connection through activities related to ecological themes. We also make various products from recycled materials in collaboration with elderly citizens. In the activities of the "Sobivanje" project, we guide students towards the development of a sustainably oriented, healthy society. We prepare various healthy snacks using seasonal and local ingredients, as well as produce from the school gardens. With these activities, we support sustainable practices, raise awareness about the importance of caring for the environment, and encourage students to establish healthy dietary habits.

KEYWORDS: ecological content, caring for the natural environment, project tasks, active students.

TRETJEŠOLCI NE ZAVRŽEJO, AMPAK PONOVRNO UPORABIJO

POVZETEK

V svoji dolgoletni učiteljski praksi sem imela priložnost spremljati razvoj eko programa od njegovega začetka vse do danes. Poudarjanje vedno večjega pomena eko vsebin, trajnostnega razvoja, prepletanja šolskih vsebin z vse življenjskimi znanji, me navdaja z upanjem, da bodo naše sedanje in bodoče generacije končno razumele pomen sobivanja z vsemi bitji na našem planetu. Žal se naše mlajše generacije vedno pogosteje soočajo z naravnimi spremembami kot so potresi, poplave, suše in podoba. Zato je naša naloga, da jih naučimo kritičnega mišljenja, učenja iz lastnih izkušenj in kako lahko kot posamezniki vplivamo na spremembe (z majhnimi koraki za velike spremembe). Namen mojega prispevka je, da predstavim, kako se v razredu vsakodnevno učimo osvajati eko načina življenja. Kot razred smo si zadali projekt Ne zavrzi, uporabi. Učenci uporabijo embalažo od malice za kreacije različnih izdelkov, s čimer razvijajo ustvarjalnost. Eden izmed primerov je lonček za rože narejen iz starih čevljev. Tak način razmišljanja nato prenesejo domov. Starši na skupnih družajih povedo, kako jih otroci vedno znova presenetijo z idejami o ponovni uporabi skoraj zavržene embalaže. Da eko razmišljanje prenašajo iz šole na dom in izboljšujejo družinski odnos do ponovne uporabe, podprejo z razrednim EKO dnevnikom. Tak način vzgoje in izobraževanja doprinese, da v učencih prebudimo ustvarjalnost, zmožnost iskanja novih rešitev, razvijamo potrebo po skupnem sodelovanju, povezovanju v skupnosti, empatijo do vseh živih bitij na planetu.

KLJUČNE BESEDE: ustvarjalnost, način življenja, ekologija, ponovna uporaba, sodelovanje.

THIRD-GRADERS DO NOT THROW AWAY, BUT REUSE

ABSTRACT

In my many years of teaching practice, I have had the opportunity to follow the development of the Eco-Curriculum from its inception to the present day. Emphasizing the growing importance of eco-content, sustainable development, the intertwining of school content with life-long skills, makes me hopeful that our present and future generations will finally understand the importance of coexistence with all creatures on our planet. Unfortunately, our younger generations are increasingly confronted with climate changes such as earthquakes, floods, droughts and the like. Therefore, it is our responsibility to teach them how to think critically, how to learn from their own experiences and how we as individuals can influence change (by taking small steps to make a big difference). The purpose of my paper is to present how we are learning to adopt an eco-lifestyle in the classroom on a daily basis. As a class, we have set ourselves the project Don't throw it away, use it. Students use lunch packaging to create different products, thereby developing creativity. An example includes making flower pots from old shoes. They then take this way of thinking home. Parents at get-togethers tell how their children constantly surprise them with ideas for reusing almost discarded packaging. To transfer eco-thinking from school to home and improve the family attitude towards reuse, they support with the Eco Diary. This way of education helps to awaken creativity, the ability to find new solutions, the need to work together, to connect in a community, and to develop empathy for all living beings on the planet.

KEYWORDS: creativity, lifestyle, ecology, reuse, cooperation.

RAZVIJANJE PODJETNIŠTVA PREKO USTANOVITVE UČNEGA PODJETJA ECOVENTURES, D. O. O., IN PROMOCIJA EKOTURIZMA V DOLGI GORI

POVZETEK

Podjetništvo, zdrav, zadovoljen in srečen posameznik ter čim bolj izkoriščeni potenciali države so temelj gospodarske rasti in razvoja. Namen prispevka je predstaviti povezavo zgoraj omenjenih elementov. Z uporabo metode dela *learning by doing* smo ustanovili učno podjetje Ecoventures, d. o. o., v katerem smo razvijali svoje podjetniške kompetence. Preko brainstorminga smo iskali ideje, na osnovi analize trga smo napravili poslovni načrt in simulirali poslovanje podjetja. Z vsemi aktivnostmi smo ostalim dijakom želeli približati naravo, jih seznaniti z manj znanimi kotički podeželja ter aktivnimi možnostmi preživljanja prostega časa. Svojo dejavnost smo usmerili na lokacijo Dolge Gore, kjer smo raziskali obstoječo ponudbo, iskali tržne niše ter na koncu tudi realizirali kolesarski izlet. Z njim smo praktično preizkusili napravljeni program. Omenjena metoda dela je zelo učinkovita. Dijakom omogoča samostojnost, kreativnost in inovativnost. Naučijo se medsebojnega komuniciranja, spoštovanja in sodelovanja. Dijaki so razvijali pozitiven odnos do narave, gibanja, preproste domače, lokalne hrane in podeželja. Izdelani kolesarski izleti se lahko realizirajo v praksi. Dijaki so se povezali z lokalnim okoljem in TIC Šentjur, ki bo izdelano ponudbo z veseljem uporabil pri promociji Občine Šentjur. Omenjena metoda dela se lahko zelo učinkovito uporabi pri izdelavi izdelkov za 4. enoto na poklicni maturi.

KLJUČNE BESEDE: učno podjetje, podjetništvo, Dolga Gora.

PROMOTING ENTREPRENEURSHIP THROUGH THE ESTABLISHMENT OF THE TRAINING COMPANY ECOVENTURES, LTD., AND ECOTOURISM PROMOTION IN DOLGA GORA

ABSTRACT

A person's entrepreneurship, a healthy, satisfied, and happy individual, and the maximization of a country's potentials are the pillars of economic growth and development. The purpose of this article is to present the interconnection between these elements. Through the "learning by doing" method, we established the training company Ecoventures, Ltd., where we developed our entrepreneurial competencies. By means of brainstorming, we generated ideas, made a business plan based on market analysis, and simulated company operations. Through these activities we wanted our students to experience close contact with nature and spend more time in nature. We promote spending leisure time actively. We focused our activities on the location of Dolga Gora, where we explored existing offerings, identified market niches, and ultimately implemented a cycling excursion. This method of work proves highly effective as it fosters students' autonomy, creativity, and innovativeness. It develops skills in interpersonal communication, respect, and collaboration. Furthermore, students developed a positive attitude towards nature, physical activity, simple homemade and local food, and rural life. Our cycling excursions can be realized in practice. We connected with the Tourist Information Center (TIC) Šentjur, which can use our programmes in their offers to promote the municipality of Šentjur. This method of work can be efficiently applied in product development for the 4th unit of the vocational baccalaureate exam.

KEYWORDS: training company, entrepreneurship, Dolga Gora.

POMEMBNOST VKLJUČEVANJA EKO VSEBIN V VZGOJNO-IZOBRAŽEVALNE PROGRAME

POVZETEK

Pomembnost vključevanja eko vsebin v vzgojno-izobraževalne programe poudarja, kako ključno je otrokom že v zgodnji dobi predstaviti koncepte ekologije, ločevanja odpadkov in recikliranja. Otroke lahko usmerjamo in spodbujamo tudi k igri z nestrukturiranim oz. odpadnim materialom. Tak način igre otrokom omogoča razvoj domišljije, ki je v predšolskem obdobju ključnega pomena. Prav tako jih taka igra spodbudi k sodelovanju z ostalimi otroki in s tem k vzpostavljanju pozitivnih odnosov med sovrstniki.

V vrtcu smo eko vsebine izvajali skozi celo leto. Naš cilj je bil otrokom približati pozitiven odnos do okolja. Z aktivnostmi, kot so ločevanje odpadkov, recikliranje papirja, igra z odpadnim materialom in s čistilnimi akcijami, smo dosegli željeni cilj. Ob koncu šolskega leta so vsi otroci vestno ločevali odpadke, opozarjali so na odvržene odpadke v gozdu in na sprehodih. Te smo vedno, z rokavicami, pobrali in jih ob prihodu v vrtec odvrgli v zabojnike.

Aktivnosti na prostem, kot so opazovanje narave in čiščenje okolice, okrepijo povezavo otrok z naravo in spodbudijo trajnostne prakse. Poleg naštetih bi lahko v svoje delo vnesli tudi vrtičkarske dejavnosti, kjer bi otroci sami skrbeli za vrt in bi odnos do narave še bolj okrepili. V svojem poklicu bi se morali večkrat posluževati iger in ustvarjanja z odpadnim materialom. Z ozaveščanjem o pomenu trajnostne rabe virov in zmanjševanju porabe plastike ter drugih škodljivih materialov vsak posameznik prispeva k ohranjanju naravnih virov za prihodnje generacije.

KLJUČNE BESEDE: eko vsebine, odpadni material, ločevanje odpadkov, skrb za okolje, igra z odpadnim materialom.

IMPORTANCE OF INTEGRATING ECO CONTENT INTO EDUCATIONAL PROGRAMMES

ABSTRACT

The importance of incorporating eco-content into educational programmes emphasizes how crucial it is to introduce concepts of ecology, waste separation, and recycling to children from an early age. Children can be guided and encouraged to play with unstructured or waste materials, fostering imagination, which is crucial in the preschool period. Such play also encourages them to collaborate with other children, promoting positive peer relationships.

In our kindergarten, eco-content activities were implemented throughout the year, aiming to instill a positive attitude towards the environment in children. Through activities such as waste separation, paper recycling, playing with waste materials, and cleaning actions, we achieved the desired goal. At the end of the school year, all children diligently separated waste, pointed out litter in the forest and during walks - which we always collected with gloves on and disposed of in bins upon returning to the kindergarten.

Outdoor activities, such as nature observation and cleaning the surroundings, strengthen children's connection with nature and encourage sustainable practices. In addition to the mentioned activities, gardening activities could be introduced, where children would take care of the garden themselves, further strengthening their relationship with nature. More play and creativity with waste materials could also be incorporated into our work. By raising awareness about the importance of sustainable resource use and reducing the consumption of plastic and other harmful materials, each individual contributes to preserving natural resources for future generations.

KEYWORDS: eco content, waste material, waste separation, environmental care, play with waste material.

DOPRINOS STROKE IN ŠTUDENTOV ZA ZELENI PREHOD BOLJŠEGA JUTRI

POVZETEK

Klimatologi, ekologi in drugi znanstveniki že dalj časa opozarjajo in s podatki dokazujejo hitro spreminjanje ekosistemov. Temperaturni rekordi se dosegajo iz leta v leto. Suše, poplave, orkanski vetrovi so postali stalnica našega življenja. Dosedanji način zagotavljanja udobnega življenja ni več primeren. Iz fosilnih goriv moramo preiti na zelene energije. Tu gre za dva ključna dejavnika. Na eni strani pridobivanje energije, na drugi strani poraba energije. Pridobivanje električne energije mora bazirati na sončni in vetrni energiji. Poraba energije pa na uporabi elektromotorjev. Na ključnih področjih transporta in ogrevanja objektov gre za električna vozila in toplotne črpalke. Prehod na okolju bolj prijazne tehnologije je drag, saj gre za zelo kompleksne rešitve in sisteme. Vsi državljani si tega prehoda finančno ne morejo privoščiti, kljub temu, da si želijo čistih rešitev. Pri zelenem prehodu bo morala aktivno sodelovati država z ustrežno zakonodajno in finančno politiko ter stroka. V članku se bom osredotočil, kako jaz aktivno podpiram zeleni prehod s strani stroke. Najučinkovitejši način je izobraževanje mladih, dijakov in študentov, aktivno sodelovanje na mednarodnih konferencah, javnih nastopanjih, časopisnih in elektronskih medijih. Preko vseh teh kanalov se informira splošna javnosti, da bo zainteresirana za uporabo novih, modernih, naprednih tehnologij, ki ne onesnažujejo in segrevajo narave. Hkrati pa je potrebno naučiti dijake in študente razumevanja delovanja moderne tehnike, njihovo aplikacijo v prakso in vzdrževanje, da bomo lahko vsi skupaj imeli boljši jutri. V članku bom konkretno pokazal potek vaj, kjer se vidijo fizikalni procesi prestopa toplote in ekonomičnost uporabe sodobnih tehnik na dolgi rok.

KLJUČNE BESEDE: zeleni prehod, globalno segrevanje, ogljični odtis, ekosistemi, pomoč države.

PROFESSIONAL AND STUDENT CONTRIBUTION TO THE GREEN TRANSITION FOR A BETTER TOMORROW

ABSTRACT

Climatologists, ecologists and other scientists have been warning for a long time and using data to prove rapid changes in ecosystems. Temperature records are set year after year. Droughts, floods, hurricanes have become a constant in our lives. The current way of ensuring a comfortable life is no longer suitable. We need to switch from fossil fuels to green energies. There are two key factors here. On one hand, energy production and on the other energy consumption. The production of electricity must be based on solar and wind energy, whereas energy consumption needs to be based on the use of electric motors. Electric vehicles and heat pumps are the key areas of transportation and heating of buildings. The transition to more environmentally friendly technologies is expensive, as it involves very complex solutions and systems. Not all citizens can financially afford this transition, despite the fact that they want clean solutions. The green transition is a key act of our survival, which is why the state will have to actively participate in this with an appropriate legislative and financial policy, as well as raising awareness among people. The profession will also have to do its part. In the article, I will focus on how I support the green transition from the professional side. The most effective way is the education of young people, pupils and students, active participation in international conferences, public appearances, newspaper and electronic media. Through all these channels, the general public is informed and thus become interested in using new, modern, advanced technologies that do not pollute and contribute to global warming. At the same time, it is necessary to teach pupils and students to understand the operation of modern technology, their practical application and maintenance, so that we can all have a better tomorrow together. In the article, I will concretely show the course of the exercises, where you can see the physical processes of heat transfer and the economy of using modern techniques in the long run.

KEYWORDS: green transition, global warming, carbon footprint, ecosystems, state aid

ODPADKI, LOČEVANJE ODPADKOV, RECIKLIRANJE

POVZETEK

Dandanes je ločevanje odpadkov zelo aktualna tema, ki lahko pomembno pripomore k reševanju problema prevelike količine odpadkov. Če ne bomo resno pristopili k ločevanju odpadkov, nas bodo smeti dobesedno zasule. Vzgoja za okolje je proces, ki se začne že v zgodnjem otroštvu. Prvi vzgled predstavljajo otroku starši, ta vzgoja se potem nadaljuje v vrtcu, kasneje v osnovni šoli in traja praktično vse življenje. Učitelji se trudimo v učencih vzbuditi odgovoren odnos do okolja, v katerem živijo. Vsakodnevno zaznavanje odpadkov na vsakem koraku mi je vzbudilo željo po raziskavi o ločevanju odpadkov. Predstavila bom rezultate spletne ankete, ki sem jo sestavila v aplikaciji 1KA. Anketirala sem učence od 1. do 3. razreda in njihove starše. V raziskavi me je zanimalo, koliko učenci in njihovi starši vedo o odpadkih, ločevanju odpadkov in kakšna je njihova ozaveščenost glede tega. Rezultati ankete so pokazali, da so starši in učenci v veliki meri ozaveščeni glede ločenega zbiranja odpadkov in da večinoma odpadke tudi ločujejo in z njimi odgovorno ravnajo. Navedla sem tudi primere ločevanja odpadkov, ki jih izvajamo na naši šoli. Za izboljšanje ozaveščenosti in praks ločevanja odpadkov pa bi predlagala: večje sodelovanje z lokalno skupnostjo (mediji in komunalna podjetja, izdelava zanimivih plakatov na to temo). Ločevanje odpadkov je nujno, če želimo ohraniti naš planet za tiste, ki bodo živeli za nami.

KLJUČNE BESEDE: vzgoja, izobraževanje, odgovornost, okolje, odpadki, ločevanje odpadkov.

WASTE, SORTING WASTE, RECYCLING

ABSTRACT

Sorting waste is becoming more and more current topic nowadays, which can significantly improve the problem of having large waste quantities. If the mentioned problem is not taken seriously, we will be literally buried under all that litter. Therefore, the environmental education is a process that starts already in the early childhood. Parents are the first who should set an example to their children, and after that nursery schools and later in primary and secondary schools-it lasts practically the whole lifetime. Teachers try to implicate the pupils a responsible relationship towards the environment we live in. Being perceptive about the waste in our everyday lives gave me the desire to research waste sorting. In my survey I am going to introduce the results of online questionnaire which I had composed with the 1KA application. In the questionnaire I asked pupils from the 1st to 3rd class of primary school and their parents. I was interested how much and also what do my students and their parents know about recycling, litter and waste sorting, as well as how much are they aware of this problem. The results have shown that the pupils and their parents are extensively quite aware of waste sorting and they do it regularly and responsibly.

I have also listed the examples of waste sorting we carry out at our school. For improving the awareness and use of waste sorting I recommend bigger cooperation with the local community (media and municipal companies, posters about the topic of waste sorting). Waste sorting is necessary in order to preserve our nature and our planet for those who will come after us.

KEYWORDS: upbringing, education, responsibility, environment, waste, waste sorting.

ODKRIVANJE ČUDES NOJEVEGA JAJCA Z EKSPERIMENTI

POVZETEK

Učitelji se vsakodnevno soočamo z izzivi, kako učence navdušiti in motivirati za učenje. Na naši šoli smo se odločili, da bomo izvedli nekaj novega, resnično nenavadnega – projekt o nojevem jajcu. Ta odločitev je bila ključna pri razvijanju drugačnega pristopa k poučevanju ter spodbujanju zanimanja za učenje pri naših učencih.

Nojevo jajce, največja jajčna celica, je postalo osrednji element našega projekta. Razdeljen na dva dela je projekt pritegnil tako učence prve triade, kot tudi učence šestih razredov. Učenci šestih razredov so bili deležni izjemnega medpredmetnega povezovanja, ki je združilo pouk naravoslovja, tehnike, gospodinjstva, likovne umetnosti in zgodovine.

Učenci so se pri naravoslovju preizkusili kot raziskovalci, saj so izvajali eksperimente z raziskovalnim pristopom. V skupine po štiri učence so se naključno formirali glede na žrebanje šestih različnih slik. Učenci so pri svojem delu uporabili nojevo, kokošje in prepeličje jajce. Na učiteljskem eksperimentalnem pultu so si sami morali izbrali pribor in pripomočke glede na to, kaj so želeli raziskati. Učenci so v dveh šolskih urah dosegli cilje: medsebojna komunikacija, načrtovanje eksperimentov, eksperimentalne veščine, varno delo in izkustveno učenje.

Zaradi velikega zanimanja učencev in pozitivnih rezultatov bomo tematiko spoznavanja nojevega jajca pri različnih predmetih izvedli tudi v bodoče. Učenci so bili navdušeni z obliko dela pri pouku in so o tem pripravili tudi članek za šolski časopis. Prepričani smo, da je raziskovalno učenje odlična priložnost za spodbujanje radovednosti in ustvarjalnosti med učenci.

KLJUČNE BESEDE: nojevo jajce, največja jajčna celica, kemijski eksperimenti, raziskovalni pristop, sodelovalno učenje.

DISCOVERING THE WONDERS OF AN OSTRICH EGG THROUGH EXPERIMENTS

ABSTRACT

Teachers face daily challenges in how to engage and motivate students in learning. At our school, we decided to do something new, truly unusual – a project on the ostrich egg. This decision was crucial in developing a different approach to teaching and fostering interest in learning among our students.

The ostrich egg, the largest egg cell, became the central element of our project. Divided into two parts, the project attracted students from both the lower and upper grades. Sixth-grade students experienced exceptional interdisciplinary connections, combining lessons in science, technology, home economics, art, and history.

In science, students acted as researchers, conducting experiments with an investigative approach. Divided into groups of four students randomly assigned based on six different images, they used ostrich, chicken, and quail eggs in their work. At the teacher's experimental desk, they had to choose their own utensils and tools based on what they wanted to investigate. In two school hours, students achieved goals including interpersonal communication, experiment planning, experimental skills, safety, and experiential learning.

Due to the high interest of students and positive results, we will continue exploring the topic of ostrich egg discovery in various subjects in the future. Students were thrilled with the teaching method and even prepared an article for the school newspaper about it. We are confident that inquiry-based learning is an excellent opportunity to stimulate curiosity and creativity among students.

KEYWORDS: ostrich egg, largest egg cell, chemical experiments, investigative approach, collaborative learning.

OKOLJSKI MIGRANTI: PLANETARNA IZREDNA SITUACIJA

POVZETEK

Razlogi, ki ženejo človeka k spremembi življenjskega okolja, so različni: iskanje novih dežel, težnja po izboljšanju življenjskih pogojev, beg pred vojnami, verska nestrpnost ... Danes pa so vse pogostejši vzroki za selitve ljudi povezani tudi s podnebnimi spremembami. T. i. okoljski migranti niso le tisti ljudje, ki so razseljeni zaradi ekstremnih okoljskih dogodkov, temveč tudi tisti, katerih migracije so posledica poslabšanja okoljskih razmer, predvsem podnebnih sprememb. Okoljska vprašanja, med katere sodijo podnebne spremembe in z njimi povezane migracije, so pomemben del vzgojno-izobraževalnih ciljev predmeta geografije. V prispevku je prikazana učna ura v 8. razredu pri pouku geografije, pri kateri so učenci spoznavali eno izmed žgočih vprašanj sodobnega sveta, to so okoljski migranti. Učno delo je trajalo 4 šolske ure. Uresničevanje vzgojno-izobraževalnih ciljev je potekalo z različnimi oblikami in metodami dela: delo z IKT gradivi, slikovnim materialom, z zemljevidom in s shematskim gradivom ter razlago, pogovorom, itd. Učenci so s pomočjo različnih študij primera (Pacifiška regija, Sahel, Mjanmar in Bangladeš ter Sirija) spoznali, da so oblike okoljskih migracij odvisne od konteksta, znotraj katerega se pojavijo (naraščanje morske gladine, ekstremna vročina, poplave, itd.). Na koncu so učenci preko primerov, kako se ljudje soočajo s to planetarno izredno situacijo, ozavestili tudi svojo vlogo v skrbi za prihodnost našega planeta ter ljudi, ki na njem živimo. Kot doprinos k stroki smo naredili pomemben korak v smeri dojemanja celostnosti tega prostorskega vprašanja in v razvijanju ozaveščenosti učencev glede njihove vloge pri vplivanju na podnebne spremembe, kar nam je potrdila anketa, ki smo jo izvedli med učenci.

KLJUČNE BESEDE: geografija, okoljski migranti, podnebne spremembe.

ENVIRONMENTAL MIGRANTS: A PLANETARY EMERGENCY

ABSTRACT

The reasons that drive people to change their living environment are various: the search for new lands, the desire to improve living conditions, fleeing from wars, religious intolerance, etc. Today, however, climate change is also an increasingly common cause of human migration. The so-called environmental migrants are not only those displaced due to extreme environmental events but also those whose migrations result from deteriorating environmental conditions primarily caused by climate change. Environmental issues, including climate change and related migrations, are an essential part of the educational goals of geography. This article illustrates an 8th-grade geography class where pupils explored one of the burning issues of the modern world: environmental migrants. The lesson lasted for 4 school hours, and the achievement of educational goals involved various forms and methods of work: working with ICT materials, visual aids, maps, schematic materials, explanations, discussions, etc. Through various case studies (Pacific region, Sahel, Myanmar and Bangladesh, and Syria), pupils learned that the forms of environmental migrations depend on the context within which they occur (sea level rise, extreme heat, floods, etc.). In the end, through examples of how people face this planetary emergency, pupils also became aware of their role in caring for the future of our planet and the people living on it. As a contribution to the profession, we have taken a significant step towards understanding the complexity of this spatial issue and in developing pupils' awareness of their role in influencing climate change, as confirmed by a survey conducted among the pupils.

KEYWORDS: geography, environmental migrants, climate change.

PORABA ELEKTRIČNIH NAPRAV V STANJU PRIPRAVLJENOSTI

POVZETEK

V strokovnem prispevku smo v prvem delu raziskali, kaj je stanje pripravljenosti električnih naprav v gospodinjstvih in katere električne naprave običajno puščamo v stanju pripravljenosti. Ugotovili smo, da so te naprave televizija, računalnik, Wi-Fi-usmerjevalnik, mikrovalovna pečica itd. V drugem delu smo ugotovili, da je povprečna poraba gospodinjstev v Sloveniji 3731 kWh, kar pri trenutni ceni električne energije znaša 955,668 € na leto. Nato smo s pomočjo enostavnega vatmetra EMT 707CTI izmerili porabo energije električnih naprav v stanju pripravljenosti. Ugotovili smo, da monitorji, Wi-Fi-usmerjevalniki, TV-komunikatorji, razne igralne konzole in pametni gospodinjski aparati porabijo nekoliko več električne energije kot ostale naprave. Ugotovili smo tudi, da so lahko med televizijami, indukcijskimi ploščami, računalniki in monitorji pri porabi električne energije v stanju pripravljenosti velike razlike. Če primerjamo dva različna monitorja, lahko eden porabi tudi do 6-krat več električne energije kot drugi. Pametne različice naprav porabijo od 3- do 5-krat več moči kot navadne. Ugotovili smo, da v vsakem gospodinjstvu lahko s sprotnim izklapljanjem naprav iz omrežja privarčujemo okoli 9 % porabe električne energije. To nanese okoli 88 € na povprečno gospodinjstvo, ki na mesec porabi 310 kWh električne energije. S pridobljenimi informacijami prispevamo k stroki na način, da krepimo zavedanje mladih tako v šoli kot na splošno o tem, kako pomembno je pravilno rokovati z električnimi napravami, kadar jih ne uporabljamo, saj to lahko zahteva tudi 9 % večjo proizvodnjo električne energije za gospodinjstva. To posledično vpliva na proizvodnjo električne energije v elektrarnah, kamor sodijo tudi termoelektrarne, ki so velike proizvajalke toplogrednih plinov.

KLJUČNE BESEDE: varčevanje, električne naprave, gospodinjski aparati, električna energija.

STANDBY POWER CONSUMPTION OF DEVICES

ABSTRACT

The first part of this paper discusses our research on the standby status of electrical devices in households and which electrical devices are usually left in standby mode. We found that these devices are TVs, computers, Wi-Fi routers, microwave ovens, etc. In the second part, we found that the average household consumption in Slovenia is 3731 kWh, which at the current electricity price amounts to 955,668€ a year. Then we measured the energy consumption of electrical devices in standby mode with the help of a simple EMT 707CTI wattmeter. We found that monitors, Wi-Fi routers, TV communicators, various game consoles and smart household appliances consume slightly more electricity than other devices. We have also found that there can be significant differences in the standby consumption of electricity between TVs, induction hobs, computers, and monitors. If we compare two different monitors, one can consume up to 6 times more electricity than the other. Smart versions of devices consume from 3 to 5 times more power than regular ones. We found that with the regular unplugging of devices from the grid, we can save around 9% of electricity consumption in every household. This adds up to around 88€ in an average household which consumes 310kWh of electricity a month. The information we gathered contributes to our profession by raising the awareness of young people in school and in general, about the importance of the correct handling of electrical devices, when we are not using them, as this can require up to 9% more electricity production for households. This consequently affects electricity production in power plants, such as thermal power plants, which are major producers of greenhouse gases.

KEYWORDS: saving, electrical devices, household appliances, electricity.

DEJAVNOSTI ZA BOLJŠI JUTRI

POVZETEK

Svet, ki je ekološko uravnotežen, v katerem vlada mir in so priložnosti pravično porazdeljene – je svet, ki si ga želimo za jutri. Naš svet je žal drugačen. Živimo v svetu, za katerega so značilne podnebne krize, konflikti, vojne in humanitarne katastrofe. Recepta za globalne izzive ni, zato je nekaj upanja položenega na izobraževanje. Namen prispevka je prikazati dejavnosti, ki jih izvajamo na šoli in s katerimi lahko kot izobraževalna ustanova vplivamo na mlado generacijo ter z njimi na prihodnost. Skozi odraščanje se morajo mladi naučiti varovati naravna temelja življenja. Skozi različne dejavnosti otroke učimo in jih spodbujamo, da stopijo skupaj, kadar pride do humanitarnih katastrof, da je treba varčevati z naravnimi viri, da zamenjana igrača prav tako razveseli in zabava, da ločujejo odpadke, skrbijo za čisto okolico, da so samooskrbni, da pridejo peš v šolo. To so le majhni vzvodi, ki spodbujajo učence k razmišljanju in dejavnostim za boljši jutri. Poleg humanitarnih akcij dvakrat letno organiziramo zbiralno akcijo papirja, zbiramo zamaške in odpadne kartuše, po oddelkih skrbimo za čisto okolico šole, spodbujamo k trajnostni mobilnosti in organiziramo različne izmenjevalnice. S pomočjo različnih dejavnosti, skozi celo šolsko leto, tako ozaveščamo, da bodo ekologija, varstvo podnebja, trajnost in z njimi povezane vrednote del našega vsakdana. Zavedati se moramo, da lahko vsi, tudi mladi, spremenimo svet in ga naredimo boljšega.

KLJUČNE BESEDE: boljši svet, izobraževanje, stopiti skupaj, trajnost.

ACTIVITIES FOR A BETTER TOMORROW

ABSTRACT

A world that is ecologically balanced, where peace reigns and opportunities are fairly distributed - is the world we want for tomorrow. Unfortunately, our world is different. We live in a world characterized by climate crises, conflicts, wars and humanitarian disasters. There is no recipe for global challenges, so some hope is placed in education. The school as an educational institution can influence the young generation and with them the future. Growing up, young people must learn to protect the natural foundations of life. Children must be taught to stand together when humanitarian disasters occur, that it is necessary to save natural resources, that a changed toy also brings joy and fun, that they separate waste, take care of a clean environment, that they are self-sufficient, that they can walk to school. These are just small levers that encourage students to think and act for a better tomorrow. Through various activities at the school, students are encouraged to participate in various campaigns. In addition to humanitarian campaigns, we organize a paper collection campaign twice a year, collect corks and waste cartridges, take care of the clean surroundings of the school by department, encourage sustainable mobility and organize various exchanges. With the help of various activities throughout the school year, we raise awareness that ecology, climate protection, sustainability and the values associated with them will be part of our everyday life. We must realize that everyone, including young people, can change the world and make it better.

KEYWORDS: better world, education, coming together, sustainability.

POMEN PRSTI KOT UČNE SNOVI V ŠOLSKI GEOGRAFIJI IN NJENO OZAVEŠČANJE JAVNOSTI

POVZETEK

Prst je nenadomestljiv naravni vir, ki je ključnega pomena za življenje. Poleg tega je prst del geosfere, kjer se zelo očitno prepletajo in součinkujejo različni elementi geosfere, zaradi česar lahko s pomočjo te prvine realiziramo doumevanje kompleksne ekosistemske povezanosti sveta, kar je temeljno za njegovo ohranitev in preudaren razvoj. Zato je namen prispevka, da prikažemo zastopanost prsti v šolski geografiji, da prst bolje spoznamo, saj učeči prenašajo svoja vedenja, vrednote in spretnosti naprej na starše in tudi na ostale interesne skupine. To bomo dosegli z analizo učnega načrta za osnovno šolo in gimnazijske programe. Z izobraževanjem mladih, ki so nosilci razvoja, pa se lahko dviguje tudi javna zavest o vlogi prsti v pokrajini. Zato bomo predstavili tudi primere dobre prakse ozaveščanja o prsti v svetu, čeprav je teh še vedno malo, sploh pa jih manjka v Sloveniji. Ugotovili smo, da je prst v šolski geografiji, v Sloveniji, zastopana v manjšem obsegu in različne raziskave so pokazale, da spadajo pedogeografske vsebine med zahtevnejše učne vsebine. Zato je naš prispevek k stroki ugotovitev, da je potrebno prsti več vključevati v izobraževalne programe. To lahko dosežemo s prenovo učnih načrtov in tudi s terenskim delom ter ekskurzijami. Potrebno je razviti tudi različne oblike ozaveščanja javnosti o prsti.

KLJUČNE BESEDE: prst, geografija, učni načrt, ozaveščanje javnosti.

THE IMPORTANCE OF SOIL AS A SUBJECT MATTER IN SCHOOL GEOGRAPHY AND ITS RAISING AWARENESS

ABSTRACT

Soil is not only an irreplaceable natural resource and of crucial importance for the existence of life, it is also part of the geosphere, in which we can clearly see the interweaving and interaction between different elements. Soil can therefore help us in understanding the complex interconnection between global ecosystems, which serves as a basis for the preservation and prudent development of our world. The purpose of this paper is to show the representation of soil in school geography to get to know the soil better, as learners pass on their knowledge, values and skills to their parents and other interest groups. This will be achieved by analysing the curriculum for primary school and grammar school. By educating young people who are drivers of development, public awareness of the role of soil in the region can also be raised. We will also present examples of good practice of raising awareness about soil in the world, although they are still very limited in number, especially in Slovenia. We found that soil in school geography, in Slovenia, is represented to a lesser extent. Different types of research have shown that pedogeographic content is one of the most demanding learning contents. Therefore, our contribution to the profession is the conclusion that soil needs to be more included in educational programmes. All of that can be achieved by renovating curricula, as well as through fieldwork and excursions. It is also necessary to develop various forms of public awareness of soil.

KEYWORDS: soil, geography, curriculum, raising awareness.

TRAJNOSTNO GOSPODARSTVO V OČEH DIJAKOV

POVZETEK

Trajnostno gospodarstvo in izobraževanje sta tesno povezani področji, saj je osveščanje in izobraževanje ključnega pomena za oblikovanje trajnostne prihodnosti. Ključne povezave med trajnostnim gospodarstvom in izobraževanjem predstavlja ozaveščanje o trajnostnih načelih, vzpostavljanje trajnostnih vrednot, pripravo na zelena delovna mesta, sodelovanje z industrijo in nenazadnje izobraževanje potrošnikov.

V svojem prispevku sem želela ugotoviti, v kolikšni meri so naši dijaki seznanjeni s področjem trajnostnega gospodarstva in širšo problematiko, ki je vezana na ohranjanje našega planeta za bodoče generacije. V ta namen sem uporabila Arnesovo orodje 1KA, ki je namenjeno izdelavi spletnih anket. Rezultate sem analizirala in prikazala v grafih s pomočjo Microsoftovega orodja Excel. Pri spopadanju s temi izzivi seveda ne gre le za gospodarstvo, ampak za globalen pristop in sodelovanje vseh nas. Raziskava je pokazala, da naši dijaki problematiko poznajo, seznanjeni so z veliko možnostmi za izboljšanje načina življenja za nas in bodoče generacije in jim ni vseeno, kaj bo z našim planetom v prihodnosti. Polovica gimnazijcev in dve tretjini anketiranih dijakov predšolske vzgoje se trudi živeti bolj trajnostno življenje, kar se najbolj izrazito kaže pri uporabi javnega prevoza, pri uporabi embalaže za večkratno uporabo in izkoriščanju obnovljivih virov energije. Hkrati pa tudi šola pripravlja dijake za izzive, kot sta med drugim tudi krožno gospodarstvo in zelena infrastruktura, s katerimi se bodo srečali na svoji poklicni poti. To sta prepoznali skoraj dve tretjini anketiranih dijakov predšolske vzgoje in slaba polovica gimnazijcev. Veseli me, da se naši dijaki trudijo živeti bolj trajnostno življenje.

KLJUČNE BESEDE: krožno gospodarstvo, zelena infrastruktura, obnovljivi viri energije, trajnostna mobilnost, izobraževanje in ozaveščanje.

SUSTAINABLE ECONOMY THROUGH THE EYES OF STUDENTS

ABSTRACT

Sustainable economy and education are closely interconnected fields, as awareness and education are crucial for shaping a sustainable future. Key links between sustainable economy and education include raising awareness about sustainable principles, establishing sustainable values, preparing for green jobs, collaborating with the industry, and ultimately educating consumers.

In my contribution, I aimed to assess the extent to which our students are familiar with the field of sustainable economy and the broader issues related to preserving our planet for future generations. For this purpose, I used the Arnes tool 1KA, designed for creating online surveys. I analyzed the results and presented them in graphs using Microsoft Excel. Coping with these challenges is, of course, not only about the economy but requires a global approach and the collaboration of all of us. The research has shown that our students are acquainted with the issues, are aware of numerous opportunities to improve our way of life for ourselves and future generations, and are concerned about the future of our planet. Half of the high school students and two-thirds of surveyed preschool education students are making an effort to live a more sustainable life, which is most prominently reflected in their use of public transportation, the use of reusable packaging, and the utilization of renewable energy sources. At the same time, the school is also preparing students for challenges such as circular economy and green infrastructure, which they will encounter in their professional paths. This was recognized by almost two-thirds of surveyed preschool education students and slightly less than half of the high school students.

I am pleased to see that our students are making an effort to lead a more sustainable life.

KEYWORDS: circular economy, green infrastructure, renewable energy sources, sustainable mobility, education and awareness.

UČNI PRIPOMOČKI IZ RECIKLIRANIH MATERIALOV - OD LINEARNEGA H KROŽNEMU GOSPODARSTVU

POVZETEK

Na področju trajnostnega razvoja se soočamo z nenehnimi izzivi, zato smo v preteklem šolskem letu sodelovali v različnih projektih in eden od teh je bil tudi projekt PCVIZ. Kako smo se ga lotili, bom predstavila v nadaljevanju. Namen tega prispevka je bil preveriti ozaveščenost dijakov na področju trajnosti, ugotoviti ali dijaki razumejo pojme trajnostni razvoj, linearno in krožno gospodarstvo. V nadaljevanju nas je zanimalo ali si prizadevajo biti trajnostni v svojem vsakdanjem življenju in na kakšen način. Razumevanje smo preverili s preizkusom znanja, ki so ga pisali dijaki. Rezultati so pokazali, da večina dijakov razume, kaj pomeni pojem trajnostni razvoj in linearno gospodarstvo. Dijaki so navajali, da se večinoma trudijo živeti trajnostno, tako da pravilno ločujejo odpadke, hodijo v šolo peš ali s kolesom, kupujejo lokalno pridelano hrano, pijejo vodo iz pipe, uporabljajo stekleničke za večkratno uporabo, ugašajo luči. Rezultati preizkusa znanja so pokazali, da imajo dijaki več težav z razumevanjem pojma krožno gospodarstvo. Razumevanje le-tega smo dosegli tako, da smo pojem razložili, teorijo pa podkrepili s praktičnimi primeri oz. izdelki, ki so jih naredili dijaki. Tako so nastali učni pripomočki iz recikliranih materialov. Prispevek k stroki je predstavitev in evalvacija aktivnosti vezanih na pojem krožno gospodarstvo in trajnostni razvoj, ki smo jih izvedli z dijaki. Preko izzivov in izkustvenega učenja smo dosegli, da so nek že odslužen material ponovno uporabili in iz njega naredili nove izdelke, ki so jih na koncu tudi predstavili in s tem dokazali, da so osvojili pojem krožno gospodarstvo.

KLJUČNE BESEDE: trajnostni razvoj, krožno gospodarstvo, izkustveno učenje, ponovna uporaba.

RECYCLED LEARNING AIDS - FROM LINEAR TO CIRCULAR ECONOMY

ABSTRACT

Because we are constantly facing challenges in the field of sustainable development, we decided to participate in various projects in the past school year. One of them was the PCVIZ project, which I will describe below. The main purpose of the project was to verify students' awareness of sustainability and to determine whether students understand the concepts of sustainable development, linear and circular economy. In addition, we wanted to know if they strive to be sustainable in their daily lives and in what way. For this purpose, students completed a test of knowledge. The results showed that most students understood what the concept of sustainable development and linear economy means. Students stated that they mostly try to live sustainably by properly separating waste, going to school on foot or by bicycle, buying locally produced food, drinking tap water, using reusable bottles, turn off the lights. The results of the examination showed that students have more difficulties in understanding the concept of circular economy. The understanding of it was achieved by substantiating the theory with practical examples and products made by students from recycled materials. The contribution to the field of activity is the presentation and evaluation of activities related to the concept of circular economy and sustainable development, which we carried out with students. Through challenges and experiential learning we achieved that some already discarded material was reused and new products were made from it. Finally, the students presented the newly created products. From the results we can conclude that they have adopted the concept of circular economy.

KEYWORDS: sustainable development, circular economy, experiential learning, reuse.

DIJAKI SREDNJE ŠOLE DOMŽALE: ANIMIRANI FILM IN VAROVANJE GOZDOV

POVZETEK

Slovenija je ena najbolj gozdnatih držav v Evropi, saj je z gozdom pokritih 58 % njenega ozemlja. 79,7 % teh gozdov je v zasebni lasti, kar pomeni, da imajo lastniki veliko odgovornost za njihovo varovanje in gospodarjenje. Večina dijakov Srednje šole Domžale živi na podeželju, kjer je gozd del njihovega vsakdana, zato je pomembno, da se zavedajo bogastva in odgovornosti, ki jih ta prinaša. Namen projekta je bil spodbuditi njihovo razmišljanje o varovanju gozdov preko dveh projektov. Prva skupina dijakov je izdelala kratek animirani film o gozdu, v katerem so uporabili svoje računalniško znanje in domišljijo. Druga skupina dijakov pa je po naravnih nesrečah, ki so prizadele gozdove na Krasu in drugod po Sloveniji, poskušala vzgojiti sadike iz semen, nabranih v gozdu, in jih namenila za pogozdovanje. Prva skupina je uspešno zaključila svoj projekt in ustvarila zanimiv film, primeren za predstavitev otrokom v vrtcu. Druga skupina pa v prvem poskusu ni bila uspešna, vendar so dijaki pokazali veliko vztrajnosti in inovativnosti ter nadaljujejo z iskanjem boljših rešitev za to nalogo. Dijaki so preko projekta začeli aktivno razmišljati o rešitvah, s katerimi lahko k varovanju gozdov prispevajo s svojim že usvojenim znanjem. Prav tako opisana eksperimenta predstavljata osnovo za aktivno udejstvovanje prihodnjih generacij dijakov na področju ekologije.

KLJUČNE BESEDE: ekologija, varovanje gozdov, vključevanje dijakov, animirani film, sadike.

STUDENTS OF SREDNJA ŠOLA DOMŽALE: ANIMATED FILM AND FOREST PROTECTION

ABSTRACT

Slovenia is one of the most forested countries in Europe, as 58% of its territory is covered by forest. 79.7% of these forests are privately owned, and therefore the owners have a lot of responsibility for their protection and management. Most of the students of the Srednja šola Domžale live in the countryside, where the forest is part of their everyday life, so it is important that they are aware of its wealth and responsibility that it brings. The purpose of our project was to stimulate their thinking about forest conservation. The first group of students made a short animated film about the forest, in which they used their computer skills and imagination. The second group of students tried to grow seedlings from seeds collected in the forest for afforestation after natural disasters that destroyed the forests in the Karst and elsewhere in Slovenia. The first group successfully completed their project and created an interesting film, suitable for presentation to children in kindergarten. The second group was not successful in the first attempt, but the students showed a lot of perseverance and innovation and continue to look for better solutions for this task. The project encouraged the students to actively think about solutions that can contribute to forest conservation with the knowledge they already acquire. The project represents the basis for active involvement of future generations of students in the field of ecology.

KEYWORDS: ecology, forest conservation, student involvement, animated film, seedlings.

BERI EKO, BODI EKO

POVZETEK

Branje je ena najpomembnejših veščin v procesu izobraževanja. Omogoča nam, da se lahko učimo in razvijamo. Bralna pismenost je pomembna za posameznikov uspešen razvoj, svobodo in enakost. Z ustrezno bralno pismenostjo želimo tudi na naši šoli omogočiti učencem enake možnosti glede na njihove psihološke, jezikovne, kulturne, socialne in ekonomske razlike. Velik pomen pri tem ima spodbujanje bralne motivacije. Otrokom želim pokazati, da so strani knjig polne čudovitih zgodb, ki jim lahko odkrijejo še druge plati življenja, pomagajo jim spoznati, da je branje zabavno. Vsak dan se srečujemo tudi s tematiko ekologije, tako v šoli kot doma. Z učenci to šolsko leto ekološke vsebine spoznavamo skozi knjige s takšno tematiko in iz vsakega branja ustvarimo dogodek. Skupaj izbiramo knjige in zgodbe, skupaj odkrivamo nove svetove in iščemo rešitve, skupaj raziskujemo in ustvarjamo. Pokazalo se je, da učenci večkrat in raje segajo po knjigah in da so željni sodelovati pri drugačnem delu, hkrati pa razvijajo do okolja odgovoren odnos. Skupinsko delo nanje vpliva zelo povezovalno in ustvarja pozitivno razredno klimo.

KLJUČNE BESEDE: bralna pismenost, motivacija, ekološke vsebine, ustvarjanje.

READ ECO, BE ECO

ABSTRACT

Reading is one of the most important skills in the educational process. It enables us to learn and develop. Reading literacy is important for an individual's successful development, freedom and equality. With appropriate reading literacy we also aim to provide the students at our school with equal opportunities, considering their psychological, linguistic, cultural, social, and economic differences. Encouraging reading motivation plays a significant role in this. I want to show children that the pages of books are full of wonderful stories that can reveal other aspects of life to them and help them realize that reading is fun. As ecology is a daily topic at school and at home, I decided to explore ecological topics with the students through books with such a theme and we create an event from every reading. We choose books and stories together, discover new worlds, find solutions, explore and create together. It has been shown that students reach for books more often and that they are eager to participate in different work, while developing a responsible attitude towards the environment. Group work has a very cohesive effect on them and creates a positive classroom climate.

KEYWORDS: reading literacy, motivation, ecological content, creativity.

MEDNARODNO SKUPNI VODNI VIRI KOT VIR KONFLIKTOV

POVZETEK

Viri, kot so hrana, energija in voda, so v neksusu, zaradi česar jih je zelo težko stabilizirati. Z vsakim dnem je vse težje podpirati družbo, kar je vzrok za vse večji človeški pritisk na naravne vire, kjer nezmožnost sodelovanja narodov igra pomemben dejavnik pri reševanju okolja. Namen prispevka je predstaviti trajnostne izzive sodobnega sveta na področju ohranjanja in upravljanja naravnih virov ter interakcijo družbenoekonomskega razvoja in okoljskih izzivov. Glavna ideja je uporaba študijskih primerov, kot sta Veliki renesančni jez v Etiopiji in Ohridsko jezero v Severni Makedoniji, da bi odgovorili na vprašanje ekologije in varčevanja z vodnimi viri za boljši jutri. Z vidika praktičnosti se lahko ugotovitve iz tega prispevka uporabijo za širjenje znanja učiteljev/profesorjev in učencev o razmerah izven meja Slovenije. Prispevek bo pokazal univerzalnost problemov po vsem svetu, kar bo poudarilo pomen sodelovanja narodov v reševanju okolja ter civilizacije.

KLJUČNE BESEDE: Nexus, vse večji človeški pritisk na naravne vire, pomen sodelovanja narodov.

INTERNATIONALLY SHARED WATER RESOURCES AS A SOURCE OF CONFLICT

ABSTRACT

Resources such as food, energy, and water are in a nexus, which makes it very hard to stabilize them sustainably. Each day it is getting harder to support society which is the cause of growing human pressures on natural resources, where the failure of nations to work together plays an important factor in saving the environment. The purpose of this paper is to present the sustainable challenges of the modern world in terms of the preservation and management of natural resources as well as the interaction of socioeconomic development and environmental challenges. The main idea is to apply case studies such as The Grand Renaissance Dam in Ethiopia and Lake Ohrid in North Macedonia to answer the question of ecology and saving water resources for a better tomorrow. In terms of practicality, the conclusion drawn from this paper can be used to expand the knowledge of faculty as well as students about conditions beyond the borders of Slovenia. The paper will show the universality of problems across the globe, which will emphasize the importance of nations working together, to save the environment along with civilization.

KEYWORDS: Nexus, growing human pressures on natural resources, the importance of nations working together.

EKOLOGIJA KOT SPOZNAVNI PROCES

POVZETEK

Pomen ekološkega osveščanja otrok v predšolskem obdobju je ključnega pomena v zavedanju kasnejšega ekološkega ravnanja. Namen projekta je prikazati možnosti predstavitve ekoloških tem v predšolskem obdobju. Področje ekologije je vedno bolj pomembno v vseh sferah življenja. Odrasli se tega zavedamo in tudi vedno bolj skrbimo za zdravje našega okolja tako v lokalnem kot tudi v svetovnem merilu. Zavedanje, da smo soodvisni pri naših ravnanjih, me je spodbudilo k izvedbi projekta Ekologija. Izvajali smo ga v skupini otrok starih 5 do 6 let, projekt je potekal skozi celo šolsko leto. V spoznavanje smo vključevali vse čute in ker so ekološke teme vseobsegajoče, smo jih vpletali na vsa vzgojna področja. Spoznavali smo se z ravnanjem z vodo, elektriko, z ločevanjem odpadkov, odpadno embalažo, kompostiranjem bio odpada. Ob zaključku šolskega leta nas je obiskala maskota komunalnega podjetja - Grini. Sodelovali smo na Grinijevem kvizu, ki ga je izvedlo komunalno podjetje in ker smo uspešno rešili vse naloge kviza, Grini je otroke obdaril z eko vrečkami iz recikliranega blaga. Te smo uporabljali kot nahrbtnike na naših opazovalnih in raziskovalnih izletih v naravo. Otroci so bili aktivno vključeni v vse faze spoznavanja ekoloških procesov in so svoja spoznanja zelo aktivno vključevali v vsakdanje življenje. Zavedanje pomena skrbi za okolje se je izrazito dvignilo in se odrazilo v vrtčevskem in domačem okolju.

KLJUČNE BESEDE: ekologija, spoznavni proces, skrb za zdravo okolje, soodvisnost.

ECOLOGY AS A COGNITIVE PROCESS

ABSTRACT

The importance of children's ecological awareness in the pre-school period is crucial in their awareness of later ecological behaviour. The aim of the project is to show the possibilities of presenting ecological topics in the pre-school period. The field of ecology is increasingly important in all spheres of life. Adults are aware of this and are also increasingly concerned about the health of our environment, both locally and globally. The realisation that we are interdependent in our actions motivated me to carry out the Ecology project. It was carried out with a group of children aged 5 to 6 years old and ran throughout the school year. We involved all the senses in learning and, as ecological themes are all-encompassing, we integrated them in all educational areas. We learnt about water management, electricity, waste separation, packaging waste, composting bio-waste. At the end of the school year, we were visited by the mascot of the municipal company - Grini. We took part in the Grini's quiz, which was organised by the municipal company, and since we successfully solved all the quiz tasks, the Grini gave the children eco-bags made of recycled goods. These were used as backpacks on our nature observation and research trips. The children were actively involved in all stages of learning about ecological processes and very actively integrated their findings into their daily lives. Awareness of the importance of caring for the environment has been raised considerably and is reflected in the kindergarten and home environment.

KEYWORDS: ecology, cognitive process, care for a healthy environment, interdependence.

SKOZI OBŠOLSKE DEJAVNOSTI K TRAJNOSTNEMU PRISTOPU

POVZETEK

Polemika o ohranjanju planeta v dobri kondiciji je v šolstvu sprožila osveščanje mladih o trajnostnem razvoju. Živimo v času, ko elektronska, mehatronska in razna zabavna tehnika preprosto niso več popravljive, prav tako pa se le majhen del teh komponent pravilno reciklira. Namen prispevka je predstaviti dodano vrednost znanja dijakov s srednje Elektro in računalniške šole, ki so pri izgradnji in oblikovanju mobilnih robotov za tekmovanje RoboCupJunior uporabljali izrabljene komponente in elemente. Vključevanje izrabljenih komponent ni le spodbudilo kreativnosti med dijaki, temveč so razvijali tudi ekološko ozaveščenost. Poleg pridobljenega tehničnega znanja so dijaki prevzeli tudi etično odgovornost do okolja. Dijaki, ki so sodelovali v krožku robotike, se lahko pohvalijo z mnogimi dosežki, tako na domači kot tudi na mednarodni ravni. Raziskovanje, testiranje in radovednost so nedvomno prispevali k največji dodani vrednosti, ki so jo dijaki pridobili skozi svoje izkušnje. Ob številnih priznanjih so razvili bogato znanje in spretnosti, ki presegajo zgolj tehnično področje, saj so postali aktivni zagovorniki trajnostnega razvoja in odgovornega ravnanja s tehnološkimi odpadki.

KLJUČNE BESEDE: RoboCupJunior, tehnološki odpadki, trajnostni razvoj.

THROUGH EXTRACURRICULAR ACTIVITIES TO A SUSTAINABLE APPROACH

ABSTRACT

The debate on preserving the planet in good condition has sparked awareness among students about sustainable development in education. We live in a time when electronic, mechatronic, and various entertainment technologies are simply no longer repairable, and only a small portion of these components is properly recycled. The purpose of this contribution is to present the added value of the knowledge gained by students from the High School of Electrical Engineering and Computer Science, who used used components and elements in the construction and design of mobile robots for the RoboCupJunior competition. The incorporation of used components not only stimulated creativity among students but also cultivated ecological awareness. Alongside the acquired technical knowledge, students have embraced ethical responsibility towards the environment. Students who participated in the robotics club can boast numerous achievements, both at the domestic and international levels. Research, testing, and curiosity undoubtedly contributed to the greatest added value that students gained through their experiences. With numerous accolades, they have developed rich knowledge and skills that go beyond just the technical field, as they have become active advocates for sustainable development and responsible handling of technological waste.

KEYWORDS: RoboCupJunior, technological waste, sustainable development.

“ HITRA MODA IN ZAVRŽENA OBLAČILA, VKLJUČEVANJE TEME V POUK GEOGRAFIJE «

POVZETEK

Hitra in poceni moda povzroča ogromne količine zavrženih oblačil. Le malo teh je po koncu uporabe recikliranih, ker je reciklaža zelo zahtevna. V manj razvitih državah veliko neuporabnih oblačil konča na nelegalnih in nevarnih odlagališčih. Da bi najstnike, ki jih mediji nenehno spodbujajo k potrošništvu, opozorili na problematiko zavrženih oblačil, smo temo vključili v interesno dejavnost in pouk geografije v osmem razredu. Najprej smo z anketo preverili predznanje in stališča učencev. Anketa kaže, da za nepotrebna oblačila večinoma poskrbijo starši, učenci pa menijo, da se veliko oblačil reciklira. Seznanjeni so s sproščanjem mikroplastike v okolje pri pranju oblačil. Učenci so pri pouku izdelali zemljevid največjih odlagališč tekstila na svetu. Z razstavljenim zemljevidom so vrstnike opozorili na pomen odgovornega nakupovanja in ravnanja z rabljenimi in odsluženimi oblačili. Tudi brez posebnih pripomočkov je možno predelati in ponovno uporabiti odslužena oblačila. Iz bombažnih majic smo spletli praktične izdelke, kot so preproga in podstavki za vročo posodo. Tako smo tudi s praktičnimi dejavnostmi učence usmerili k razmisleku o ponovni uporabi.

KLJUČNE BESEDE: zavržena oblačila, pouk geografije, ponovna uporaba tekstila.

TITLE: “FAST FASHION AND DISCARDED CLOTHING IN GEOGRAPHY LESSON”

ABSTRACT

Fast and cheap fashion causes huge amounts of discarded clothing. Just a little bit of clothing is recycled after the use, because recycling is quite challenging. In less developed countries a lot of unusable clothing ends up in illegal and dangerous landfills. In order to draw the attention of teenagers, who are constantly encouraged by the media to consumerism, to the problem of discarded clothing, we included the topic in an extracurricular activity and geography lesson in the eighth grade.

Firstly, the students' prior knowledge and point of view were checked. The survey shows, that the parents take care of unnecessary clothing. The students also think, that a lot of discarded clothing is recycled. They are familiar with the release of microplastics into the environment when washing clothes.

During the lesson, the students created a map of the largest textile landfills in the world. With the displayed map, peers were reminded of the importance of responsible shopping and dealing with used and discarded clothing. Even without special tools, it is possible to process and reuse used clothing. We wove cotton shirts into practical products such as rugs and coasters for hot dishes. Thus, with practical activities, we directed the students to think about reuse.

KEYWORDS: geography lesson, discarded clothing, reusing textiles.

VZGOJA MLADIH EKOLOŠKIH BOJEVNIKOV: POTOVANJE OD IGRE DO TRAJNOSTNEGA ŽIVLJENJA

POVZETEK

Otroške predstave na različne načine pritegnejo otroke. Nudijo jim miselne in socialne izzive, omogočijo, da sledijo novim vsebinam, strukturam in jeziku. Namen pričujočega prispevka je predstaviti, kako smo v 1. razredu prepletali predstavo z okoljsko temo ekologije, ohranjali vse smernice, ki jih imamo na osnovnošolski ravni, in snovali novo lastno predstavo. Ljudje se najbolj učimo, ko smo sproščeni, in to je bil tudi glavni namen prepletanja predstave in vključevanja ekoloških vsebin v naš vsakdan, hkrati pa ohranjati sproščenost, igrivost in otroško radovednost ter vključevati ideje v največji možni meri. Z željo, da postane tema ekologija čim bolj privlačna in otrokom domača, sem priredila predstavo in vanjo vključila nekatere mejnike v ekologiji, ki se nas dotaknejo vsak dan. Na ta način sem dobila njihovo prvo pozornost, ideje v otroških glavah pa niso imele meja niti konca.

KLJUČNE BESEDE: ekologija, otroška predstava, igra.

NURTURING YOUNG ECO-WARRIORS: A JOURNEY FROM PLAY TO SUSTAINABLE LIVING

ABSTRACT

Children's performances attract children in various ways. They offer them mental and social challenges, enable them to follow new content, structures and language. The purpose of this paper is to present how we, in the 1st grade, interwove the performance with the environmental theme of ecology, keeping all the guidelines we have at the elementary school level, and created a new performance of our own. People learn best when they are relaxed, and this was the main purpose of interweaving the performance and integrating ecological content into our everyday life, while at the same time maintaining relaxation, playfulness and childlike curiosity while including ideas as much as possible. With the desire to make the topic of ecology as attractive and familiar to children as possible, I organized a performance and included in it some milestones in ecology that touch our lives every day. In this way, I first captured their attention, and the ideas in the children's minds had no limits or end.

KEYWORDS: ecology, children's performance, game.

EKOLOŠKO OZAVEŠČANJE DIJAKOV S POMOČJO MATEMATIKE

POVZETEK

Zavedanje o čistem in zdravem okolju, predvsem pa o okolju, v katerem živimo, je zelo pomembno. V zadnjem času opažamo veliko odvrženih odpadkov v okolici šole, zato smo poskušali ugotoviti, kakšne so navade dijakov in kakšen je njihov pogled na ohranjanje čistega in zdravega okolja. Razen tega pa smo želeli tudi popestriti učne ure matematike z ekološkimi vsebinami, ki jih je v novejših učbenikih težje zaslediti.

S pomočjo mentimetra smo ugotavljali ekološko ozaveščenost dijakov ter kakšne so njihove navade glede ohranjanja čistega in zdravega okolja. Rezultati so pokazali, da se dijaki zavedajo ekološke problematike, vendar pa se vsega ne zavedajo in ne razumejo, predvsem so bili presenečeni nad ogljičnim odtisom (o tem še niso ničesar slišali). Slednje so spoznali šele na podlagi filmčka, ki smo si ga ogledali na YouTubeu.

Doprinos prispevka k stroki je ekološka ozaveščenost dijakov ter popestritev predmeta matematika z ekološkimi vsebinami.

KLJUČNE BESEDE: ekologija, ekološko ozaveščanje, matematika.

ECOLOGICAL AWARENESS IN MATHEMATICS

ABSTRACT

Awareness of a clean and healthy environment, and especially of the environment in which we live, is very important. Recently, we have noticed a lot of discarded waste around the school, so we tried to find out what the students' habits are and what their view is on maintaining a clean and healthy environment. Apart from this, we also wanted to enrich the mathematics lessons with ecological content, which is more difficult to find in newer textbooks.

With the help of a mentimeter, we determined the ecological awareness of students and what their habits are in terms of maintaining a clean and healthy environment. The results showed that the students are aware of ecological issues, but they do not have quite all the concepts clarified, they were especially surprised by the carbon footprint (they had never heard anything about it). The latter was only found out based on the video we watched on YouTube. The contribution of the contribution to the profession is the ecological awareness of students and the enrichment of the mathematics subject with ecological content.

KEYWORDS: ecology, ecological awareness, mathematics.

VLOGA FOTOGRAFIJE PRI OKOLJSKEM OZAVEŠČANJU

POVZETEK

Onesnaženost okolja je kompleksen in pereč problem, ki izhaja iz vnosov škodljivih snovi v zrak, vodo in tla, bodisi naravno ali posredno s strani človeka. Onesnaženje okolja lahko povzroča resne posledice za človeško zdravje in ostale ekosisteme. Pri pouku smo želeli ugotoviti, koliko in na kakšen način dijaki skrbijo za čisto okolje ter koliko so ozaveščeni o varovanju okolja. Za dvigovanje ozaveščenosti o okolju smo uporabili fotografijo. Fotografija je najzanesljivejši in najnatančnejši medij za shranjevanje vidnih podatkov. Fotografija se lahko uporablja za dokumentiranje resničnosti, lahko pa je tudi ustvarjalna ali umetniška. Cilj umetniške fotografije je uživanje v lepoti ujetniške slike in prenos sporočila, misli ali čustev. Cilj aktivnosti, ki smo jo izpeljali, je spodbuditi dijake k opazovanju okolice, v kateri živijo, razvijanje kritičnega razmišljanja pri analizi fotografij, hkrati pa dvigniti ozaveščenost o pomenu ohranjanja čistega okolja.

Z dijaki smo izvedli anketo, s katero smo želeli ugotoviti, v kolikšni meri lahko fotografija vpliva na njihovo pripravljenost aktivnega sodelovanja pri ohranjanju čistega okolja. Ugotovitve kažejo, da fotografije onesnaženega okolja delno povečajo pripravljenost dijakov za ukrepanje, ko opazijo onesnaženost, na katero lahko neposredno vplivajo. Poleg tega so nekateri dijaki predstavili svoje ideje, kaj bi fotografirali in na kakšen način bi svoje sošolce lahko ozavestili o onesnaženosti okolja. Primer, ki ga tukaj predstavljamo je samo eden izmed mnogih, ki na enostaven in dolgoročen način lahko vplivajo na mnenje posameznika o okoljevarstvenih težavah s katerimi se kot družba soočamo.

KLJUČNE BESEDE: varovanje okolja, fotografija, okoljska ozaveščenost.

THE ROLE OF PHOTOGRAPHY IN ENVIRONMENTAL AWARENESS

ABSTRACT

Environmental pollution is a complex and pressing problem resulting from the introduction of harmful substances into the air, water and soil, either naturally or indirectly by humans. Environmental pollution can have serious consequences for human health and other ecosystems. In the classroom, we wanted to find out to what extent and in what ways students care about a clean environment and how aware they are of environmental protection. To raise awareness about the environment we used photography. Photography is the most reliable and accurate medium for storing visual information. Photography can be used to document reality, but it can also be creative or artistic. The aim of artistic photography is to enjoy the beauty of the captured image and to convey a message, thought or emotion. The goals of the activity we carried out is to encourage students to observe their surroundings, develop critical thinking skills when analysing photographs, and to raise awareness of the importance of keeping the environment clean.

We conducted a survey with students to find out to what extent photography can influence their willingness to actively participate in the preservation of a clean environment. The findings show that photographs of a polluted environment partly increase students' willingness to take action when they see pollution that they can directly influence. In addition, some students presented their ideas on what to photograph and how to raise awareness about pollution among their classmates. The example we present here is just one of many that can influence people's opinions about the environmental problems we face as a society in a simple and long-lasting way.

KEYWORDS: environmental protection, photography, environmental awareness.

MOTIVI NARAVE V CANKARJEVEM DELU

POVZETEK

Ob svetovni podnebni krizi, onesnaženem zraku in vidnem spreminjanju vremena ter letnih časov je izredno pomembno otroke učiti tudi o naravi. Učitelji imamo edinstveno priložnost, da otrokom poleg predpisane učne snovi ponudimo vpogled tudi v svet, ki nas obdaja. Namen pričujočega prispevka je predstaviti primer pouka slovenščine v 3. letniku splošne gimnazije, pri katerem sem obravnavano snov podkrepila s praktičnim spoznavanjem narave, ob tem pa so dijaki poleg obravnavanega Cankarjevega proznega dela in tehnike dramatizacije spoznali tudi posebnosti narave. Prispevek podaja primer inovativnega pouka, saj verjamem, da lahko s predstavitvijo novih plasti ekoloških vsebin vplivamo na to, da bodo dijaki naravo in njene darove znali ceniti in znanje praktično uporabiti, naravo pa ohranjati še za prihodnje rodove.

KLJUČNE BESEDE: Cankar, inovativno poučevanje, narava, ekologija.

NATURE MOTIVES IN CANKAR'S WORK

ABSTRACT

With the global climate crisis, polluted air and visible changes in the weather patterns and the seasons, it is vital that we teach children about nature. As teachers, we have a unique opportunity to offer children insights into the world around us in addition to the prescribed learning material. The purpose of this paper is to present an example of a Slovene lesson in the 3rd year of grammar school, in which I elaborated on and substantiated the discussed material with practical learning about nature. In addition to Cankar's discussed prose work and the technique of dramatization, the students also learned about the peculiarities of nature. The contribution provides an example of innovative teaching, as I firmly believe that by presenting new aspects of ecological content, we can influence the students' ability to appreciate nature and its gifts and to use their knowledge practically in order to preserve nature for future generations.

KEYWORDS: Cankar, innovative teaching, nature, ecology.

POVEZAVA MED PREHRANJEVALNIMI VZORCI IN STOPNJO ŠPORTNE DEJAVNOSTI PRI DIJAKIH SSI IN SPI NA TEHNIŠKEM ŠOLSLEM CENTRU MARIBOR

POVZETEK

Ključnega pomena za zdrav razvoj mladostnikov sta uravnotežena prehrana in redna fizična aktivnost. Ta članek predstavlja izsledke raziskave, ki je preučevala razmerje med prehranskimi navadami in intenzivnostjo športnih aktivnosti med dijaki srednješolskih strokovnih (SSI) in poklicnih (SPI) programov na Tehniškem šolskem centru Maribor. Anketa je vključevala 230 dijakov, ki obiskujejo od prvega do četrtega oziroma tretjega letnika. Glavno vprašanje raziskave je bilo, ali dijaki razumejo pomen zdravega prehranjevanja in ali se zavedanje o tem razlikuje med dijaki SSI in SPI programov. Rezultati so razkrili, da je splošna osveščenost dijakov o pomenu zdrave prehrane in ustrezne prehranske prakse zelo slaba. To se kaže pri obeh skupinah dijakov, neodvisno od njihovega vključevanja v športne aktivnosti. Na podlagi teh ugotovitev se načrtuje razvoj strategij za povečanje zavedanja dijakov o pomembnosti uravnotežene prehrane in aktivnega načina življenja.

KLJUČNE BESEDE: mladostniki, uravnoteženo prehranjevanje, telesna dejavnost, Tehniški šolski center Maribor.

RELATIONSHIP BETWEEN DIETARY PATTERNS AND LEVEL OF SPORTS ACTIVITY AMONG SSI AND SPI STUDENTS AT THE TECHNICAL SCHOOL CENTER MARIBOR

ABSTRACT

Balanced nutrition and regular physical activity are crucial for the healthy development of adolescents. This article presents the findings of a study that examined the relationship between dietary habits and the intensity of sports activities among students of vocational (SPI) and technical secondary education (SSI) programs at the Technical School Center Maribor. The survey included 230 students from the first to the fourth or third year. The main research question was whether students understand the importance of healthy eating and whether there is a difference in awareness between SSI and SPI program students. The results revealed that the overall awareness of students about the importance of healthy eating and proper dietary practices is very poor. This is evident in both groups of students, regardless of their involvement in sports activities. Based on these findings, strategies are being planned to increase students' awareness of the importance of balanced nutrition and an active lifestyle.

KEYWORDS: Adolescents, Balanced Diet, Physical Activity, Technical School Center Maribor.

VKLJUČEVANJE ESE PROSTOVOLJCEV V ŠOLSKI PROSTOR – DELO NA ŠOLSKEM VRTU

POVZETEK

V Osnovni šoli Gradec že vrsto let gostujemo evropske prostovoljce iz programa Evropske solidarnostne enote. ESE projekti prostovoljstva nudijo mladim priložnosti za sodelovanje v različnih solidarnostnih aktivnostih. Takšni projekti morajo odgovarjati na pomembne potrebe družbe, vsebovati izzive na terenu, prispevati h krepitvi skupnosti in ob tem prostovoljcem omogočati pridobivanje veščin in kompetenc za osebni, izobraževalni, socialni, državljski in profesionalni razvoj. Šolski prostor takšno udejstvovanje prostovoljcev omogoča, saj se skozi šolsko leto vključujejo v aktivnosti po celotni vertikali. Vrt je na naši šoli stalnica tako na matični šoli, kot na vseh štirih podružnicah. Skozi leta je na šolskih vrtovih s pomočjo prizadevnih učiteljic, učencev in ESE prostovoljcev zrastle premnogo sadik, rož, dreves ter seveda sadja in zelenjave. Delo na vrtu vsem vključenim krepi delovne navade, preko skrbi za rastline se krepijo v odgovornosti, učijo se potrpežljivosti, zdravega načina življenja in seveda tudi spoštljivega odnosa do narave in na vrtu pridelane hrane. Projekt Šolski vrtiček je že dolga leta del programa podaljšane bivanja na šoli. Ker se na šoli zavedamo pomembnosti trajnostnega znanja, smo aktivnosti projektov Evropski prostovoljci v OŠ Gradec in Šolski vrtiček povezali v smislu le tega. Glavni cilj povezovanja projektov je, da skozi vzajemno sodelovanje povežemo lokalno skupnost. Zato smo k sodelovanju povabili ESE prostovoljce Mladinskega centra Litija in Društva Lojtra, ki skozi svoje projekte aktivno delujeta na področju trajnostnega razvoja. Ker naši prostovoljci prihajajo iz različnih okolij, vsi vključeni s tem krepimo znanje in ozaveščenost ter razumevanje drugih kultur, ob tem pa vse udeležene učimo o pomembnosti vzgoje za bolj čisto in zdravo okolje. Ključni cilj takšnega sodelovanja je spoznavanje vzgoje rastlin in uporaba le-teh v kulinariki. Obe zunanji organizaciji s katerima sodelujemo, sta v projektu zadolženi, da poskrbita za bivanje prostovoljcev, zdravstveno in finančno preskrbljenost, v šoli pa opravljajo svojo prostovoljno delo.

KLJUČNE BESEDE: evropski prostovoljci, prostovoljna služba, Evropska solidarnostna enota, projekt Šolski vrtiček.

INCLUDING ESC VOLUNTEERS IN THE SCHOOL ENVIRONMENT - WORKING IN THE SCHOOL GARDEN

ABSTRACT

Gradec Elementary School has been hosting European volunteers from the European Solidarity Corps program for many years. ESC volunteering projects offer young people opportunities to participate in various solidarity activities. Such projects must respond to the important needs and challenges of society, contribute to strengthening the community and enable volunteers to acquire skills and competences for personal, educational, social and professional development. The school environment enables such involvement of volunteers, as they can be included in activities across the entire vertical. The School Garden project has been part of the after-school lessons program for a long time. At school we are aware of the importance of sustainable knowledge, we have combined the activities of both projects: European volunteers in Gradec Elementary School and The School Garden. The school has gardens at the main school and at all four branch schools. With the help of diligent teachers, students and our ESC volunteers, all sorts of seedlings, flowers, trees, fruits and vegetables have grown in our school gardens. Working in the garden has benefits for everyone involved. They learn to have a sense of responsibility through taking care of the plants, they also learn to have patience by observing their growth, learn about the healthy way of life and develop a respectful attitude towards nature and the food that grows in the gardens. The main goal of connecting both projects is to connect the local community through active cooperation of all participants. To complete this goal, we invited ESE volunteers from the Youth Center Litija and Društvo Lojtra to participate. Both organizations try to actively work in the field of sustainable development. Our ESE volunteers come from different backgrounds. Through their participation we all strengthen our knowledge, awareness and understanding of other cultures, and raise awareness about the importance of education for a cleaner and healthier environment. The main

goal of this cooperation is mutual learning about how the plants grow and how we can use them. The external organizations take care of volunteers' accommodation, their medical support and finances, but the volunteers do their voluntary work at school.

KEYWORDS: european volunteers, voluntary service, European solidarity corps, The School Garden project.

O ČLOVEKOVEM ODNOSU DO NARAVE SKOZI BRANJE LEPOSLOVJA V BRALNEM KLUBU

POVZETEK

Tudi z branjem leposlovja, ki obravnava človekov odnos do narave, lahko pri mladih pomembno prispevamo k spodbujanju in razvijanju spoštljivega odnosa do narave. Kot mentorica bralnega kluba predstavljam primer iz prakse – pogovor o romanu *Otok pogrešanih dreves* Elif Shafak. Z njim želim prikazati, kako je lahko tudi literatura pomemben medij, ki ozavešča odnos do narave/okolja in omogoča ekološko ozaveščanje na nevsiljiv in estetski način. Bralni klubi ponujajo drugačen (»nešolski«) pristop k obravnavi leposlovja, ki poteka v obliki sproščene (vodene) pogovora po branju. Ta pristop omogoča, da se lahko bolj osredotočimo na pogovor o njihovem doživljanju med branjem. Krožek je prostoizbiren, zato so mladi bralci še posebej zainteresirani za debato o različnih temah, ki jih nagovarjajo skozi izbrana dela. Svoje misli in mnenja delijo z drugimi bralci v skupini. Vse to pa spodbuja odprto komunikacijo, kritično razmišljanje in izmenjavo idej, hkrati pa razvija njihovo sposobnost izražanja in argumentacije. Skozi branje in skupinski pogovor lahko bolje razumejo sebe in svet, v katerem živijo.

KLJUČNE BESEDE: srednješolski bralni klub, odnos do narave, ekologija, *Otok pogrešanih dreves*.

EXPLORING HUMAN RELATIONSHIP WITH NATURE THROUGH FICTION READING IN A BOOK CLUB

ABSTRACT

Reading novels that explore the human relationship with nature can also play a significant role in encouraging and developing a respectful attitude towards the environment in young people. As a mentor of a book club, I present a practical example – a discussion on the novel »The Island of Missing Trees« by Elif Shafak. This example illustrates how literature can be an important medium for raising awareness of the relationship with nature/environment and promoting ecological awareness in a non-intrusive and aesthetic manner. Reading clubs offer a different more relaxed approach to addressing literature. This approach allows for a more focused conversation on their experiences during reading. Young readers are interested in debating various topics addressed in the selected works. They share their thoughts and opinions with other readers in the group. All of this encourages open communication, critical thinking, and the exchange of ideas, while also developing their ability to express themselves and argue their points. Through reading and group discussions, they can better understand themselves and the world they live in.

KEYWORDS: high school reading club, relationship with nature, ecology, *The Island of Missing Trees*.

UPORABA ODPADNIH MATERIALOV PRI POUČEVANJU OTROK S POSEBNIMI POTREBAMI

POVZETEK

Odpadki v današnjem času predstavljajo vedno večji izziv družbe, zato je ključnega pomena, da že naše najmlajše pričnemo dovolj zgodaj ozaveščati glede skrbi za naravo in ustreznega ravnanja pri zmanjšanju odpadkov. Odpadki imajo pogosto še ogromno potenciala, ki ga lahko prepoznamo in uporabimo tudi pri poučevanju. Iz odpadnih materialov namreč lahko izdelamo didaktične materiale, ki nudijo dobro alternativo novim, pogosto dragim didaktičnim igračem. Pri individualnem ali skupinskem delu z otroki s posebnimi potrebami imamo tudi v osnovnošolskem prostoru priložnost, da uporabimo odpadke tako, da koristijo otrokom s posebnimi potrebami pri opismenjevanju, razvijanju (pred)matematičnih spretnosti, utrjevanju učnih vsebin in razvijanju čustveno-socialnih veščin. Ključna strategija poučevanja učencev s posebnimi potrebami je ravno aktivno in multisenzorno učenje, kjer si lahko pomagamo z različnimi didaktičnimi materiali izdelanimi iz odpadkov.

Namen pričujočega prispevka je predstaviti konkretne načine, kako lahko učitelji uporabimo odpadno embalažo kot sredstvo, ki učencem pomaga pri osvajanju učnih in socialnih veščin. Učenci so individualno ali v skupini izdelovali konkretne materiale in igrače, ki so jih kasneje tudi uporabili pri vsakdanjem učenju, utrjevanju, zabavi ali sprostivni. Učencem se je učenje z odpadnimi materiali zdelo bolj dinamično in motivacija za učenje je bila večja. Doprinos prispevka je tudi v spoznanju otrok, da skozi uporabo didaktičnih materialov iz odpadnih materialov lahko že zavrženim odpadkom namenimo novo življenje.

KLJUČNE BESEDE: ekologija, otroci s posebnimi potrebami, odpadki, didaktični material.

USE OF WASTE MATERIALS IN TEACHING CHILDREN WITH SPECIAL NEEDS

ABSTRACT

Nowadays, waste represents an increasingly significant challenge, so it is crucial that we start raising awareness about nature conservation and proper waste reduction among children early on. Waste often has a huge potential, which can be recognized and used in teaching. Didactic materials can be made from waste materials, providing a cost-effective alternative to new and often expensive didactic toys. When working individually or in groups of children with special needs, even in primary school, we have the opportunity to use waste in such a way that it benefits children with special needs in literacy, developing (pre)mathematical skills, consolidating learning content, and the developing emotional-social skills. The key teaching strategy for students with special needs is active and multisensory learning, where various didactic materials made from waste can be employed.

The purpose of this paper is to present specific ways in which teachers can use waste packaging as a tool to help students acquire learning and social skills. The students made concrete materials and toys individually or in groups. They later used them in everyday learning, consolidation, entertainment or relaxation. The students found learning with waste materials more dynamic and the motivation to learn was higher. The contribution of the paper is also in the children's awareness that through the use of didactic materials from waste materials, we can give a new life to discarded waste.

KEYWORDS: ecology, children with special needs, waste, didactic material.

EKOLOŠKA OZAVEŠČENOST UČITELJEV RAZREDNEGA POUKA V SLOVENIJI

POVZETEK

V naravi lahko opazimo, kako vse, kar jo sestavlja, vzdržuje ravnovesje, kjer konec enega elementa označuje začetek drugega. Smo del številnih ekosistemov, vključno z rastlinsko in živalsko skupnostjo ter majhnimi organizmi, in zato moramo spoštovati ter skrbeti za to harmonijo. Pomembno je, da se izobražujemo z namenom razvijanja trajnostnega razmišljanja in načina življenja. Ta proces se večinoma začne z razvijanjem ekološke pismenosti, ki vključuje tako učitelje kot tudi učence. Vloga učiteljev je ključna pri spodbujanju ozaveščenosti o ekologiji ter oblikovanju odnosa do varovanja narave. Naši cilji so bili ugotoviti zanimanje in angažiranost učiteljev za okoljsko vzgojo ter njihovo mnenje o pomembnosti okoljskega izobraževanja ter ugotoviti stopnjo vključevanja okoljskih vsebin pri pouku. V anonimni anketi smo anketirali 112 učiteljev razrednega pouka v Sloveniji. Ugotovili smo, da imajo učitelji veliko zanimanja za okolje – radi preživljajo čas v naravi (M=4,1) ter se zanimajo za okolje in trajnostni razvoj (M=4,0). Učitelji se udeležujejo čistilnih akcij (M=3,9) in izletov v različna okolja (M=4,0). Kljub visokemu zanimanju za okolje se ne angažirajo za okoljske aktivnosti toliko, ko ti bilo pričakovati. Pogosto k pouku vključujejo okoljske aktivnosti – vključevanje v akcije za boljše okolje, zbiralne akcije (M=4,7). Učitelji se zavedajo pomembnosti okoljske vzgoje v času osnovnošolskega izobraževanja (M=4,9), hkrati pa menijo, da učenci ne prejmejo dovolj znanja o okoljski ozaveščenosti (M=2,7). 64 % meni, da bi bilo potrebno izboljšati okoljsko ozaveščenost učiteljev. Prispevali smo k razumevanju stanja okoljskega izobraževanja in identifikaciji potencialnih področij izboljšav, kar lahko vodi k bolj trajnostnemu pristopu v izobraževanju in okoljski ozaveščenosti učiteljev.

KLJUČNE BESEDE: ekološka ozaveščenost, varovanje okolja, okoljsko izobraževanje, učitelji, osnovna šola.

ECOLOGICAL AWARENESS OF PRIMARY SCHOOL TEACHERS IN SLOVENIA

ABSTRACT

In nature, we witness the delicate balance maintained among its components, signifying a continuous cycle of renewal. As integral parts of diverse ecosystems, including plant and animal communities, and microorganisms, it is imperative to uphold and nurture this harmony. Education is pivotal in fostering sustainable mindsets and lifestyles, starting with the cultivation of ecological literacy among both teachers and pupils. Teachers assume a vital role in fostering ecological awareness and instilling values of environmental stewardship. Our study aimed to gauge teachers' interest and involvement in environmental education, their perceptions of its significance, and the extent of environmental integration in teaching. An anonymous survey was conducted among 112 primary school teachers across Slovenia. Results indicate a strong interest among teachers in environmental issues, evident in their enjoyment of nature (M=4.1) and interest in environmental topics and sustainable development (M=4.0). They actively engage in clean-up activities (M=3.9) and excursions to diverse environments (M=4.0). However, their involvement in environmental activities falls short of expectations. Environmental activities are often included in teaching – participation in actions for a better environment, collection campaigns (M=4.7). Teachers are aware of the importance of environmental education during primary school education (M=4.9), but they believe that pupils do not receive enough knowledge about environmental awareness (M=2.7). 64 % acknowledge the need to enhance teachers' environmental awareness. Our findings contribute to a deeper understanding of environmental education's status and identify avenues for improvement, facilitating a more sustainable educational approach and fostering heightened environmental consciousness among teachers.

KEYWORDS: ecological awareness, environmental conservation, environmental education, teachers, primary school.

VPLIV DEBELINE ZIDAKOV NA ENERGETSKO UČINKOVITOST GRADNJE

POVZETEK

Gradnja hiše zahteva premišljeno načrtovanje in upoštevanje številnih dejavnikov, ki vplivajo na končne stroške. V strokovnem prispevku smo primerjali Wienerberger Porotherm 25 Profi in Wienerberger Porotherm 30 Profi zidake ter analizirali njihov vpliv na toplotno prestopnost zidu. Ugotovili smo, da debelina zidu ni edini faktor, ki vpliva na toplotno izolativnost, in da lahko debelejši zidovi prinašajo višje stroške in slabšo energijsko učinkovitost. Pomembno je upoštevati celovitost sistema izolacije in izbrati materiale ter debeline, ki bodo zagotovile optimalno energijsko učinkovitost ob upoštevanju funkcionalnosti in estetike objekta. Kljub začetnim višjim stroškom investicija v trajnostno gradnjo dolgoročno zmanjšuje porabo energije in obremenitve okolja, prispevajoč k trajnostnemu razvoju. Obravnavana tema se izkaže kot primerna snov za učenje srednješolskih dijakov v programu Strojni tehnik, saj jim omogoča temeljito razumevanje konceptov učinkovite rabe energije. Sodelovanje dijakov v tej vrsti naloge spodbuja njihovo razumevanje trajnostne gradnje, razvija kritično presojo o energetski učinkovitosti materialov ter prispeva k ozaveščanju o trajnostnem razvoju in uporabi materialov med mladimi.

KLJUČNE BESEDE: toplotna prestopnost, toplotni tok, ekološki vidik, trajnostna gradnja, ogljični odtis.

TITLE: INFLUENCE OF BRICK THICKNESS ON THE ENERGY EFFICIENCY OF CONSTRUCTION

ABSTRACT

Building a house requires thoughtful planning and consideration of numerous factors that influence final costs. In our professional contribution, we compared Wienerberger Porotherm 25 Profi and Wienerberger Porotherm 30 Profi bricks and analyzed their impact on the thermal transmittance of the wall. We found that wall thickness is not the only factor affecting thermal insulation and that thicker walls can bring higher costs and lower energy efficiency. It is important to consider the integrity of the insulation system and choose materials and thicknesses that will ensure optimal energy efficiency while considering the functionality and aesthetics of the structure. Despite the initial higher costs, investment in sustainable construction reduces energy consumption and environmental burdens in the long term, contributing to sustainable development. The discussed topic proves to be suitable material for educating high school students in the Mechanical Engineering program, as it enables them to thoroughly understand the concepts of efficient energy use. Participation of students in this type of task encourages their understanding of sustainable construction, fosters critical assessment of material energy efficiency, and contributes to awareness of sustainable development and material use among young people.

KEYWORDS: thermal transmittance, heat flow, ecological aspect, sustainable construction, carbon footprint.

DVIG BRALNE PISMENOSTI SKOZI PROJEKT »EKOBRANJE ZA EKOŽIVLJENJE«

POVZETEK

Bralna pismenost vključuje branje, poslušanje, govorjenje in pisanje ter nam pomaga pri različnih vsakodnevni dejavnostih. Raziskava PISA 2022 je pokazala in tudi učitelji slovenščine opažamo, da so dijaki zelo šibki v branju, zato imajo pogosto težave pri razumevanju navodil. Da bi dijake spodbudila k branju, razmišljanju in vrednotenju prebranega, sem se vključila v projekt *Ekobranje za ekoživljenje*, katerega namen je preko branja knjig z ekološko tematiko in ustvarjalnega mišljenja krepiti ekološko zavest pri dijakih. Projekt sem izvedla v obliki obravnave domačega branja, ki je bila razdeljena na dva dela, in sicer na razumevanje prebranega in na kritično razmišljanje o prebranem. Prispevek skuša pokazati, da je sodelovanje pri projektu pozitivno učinkovalo na dijake, saj so preko branja knjige z ekološko vsebino izboljšali bralno pismenost, kritično razmišljanje o okoljskih vprašanjih pa je pripomoglo k razvijanju odgovornega odnosa do okolja, narave in bivanja nasploh. Projekt *Ekobranje za ekoživljenje* lahko v šoli izvajamo tudi pri tujem jeziku.

KLJUČNE BESEDE: bralna pismenost, projektno delo, knjige z ekološko vsebino.

RAISING READING LITERACY THROUGH THE ECO-READING FOR ECO-LIFE PROJECT

ABSTRACT

Reading literacy includes reading, listening, speaking, and writing and helps us with a variety of daily activities. The PISA 2022 survey showed, and teachers of Slovene language have also noticed, that students are very weak in reading and often have difficulties understanding instructions. To encourage students to read, think and evaluate what they read, I joined the *Eco-Reading for Eco-Life* project, which aims to strengthen the ecological awareness of students through reading books with ecological themes and creative thinking. I carried out the project in the form of a home reading, which was divided into two parts: comprehension and critical reflection. The paper tries to show that participation in the project had a positive effect on students, as reading a book with ecological content improved their reading literacy, and critical thinking on environmental issues contributed to the development of a responsible attitude towards the environment, nature and living in general. The *Eco-Reading for Eco-Life* project can also be implemented in a foreign language at school.

KEYWORDS: reading literacy, project work, books with ecological content.

SKRB ZA PTICE PRI MALČKIH V VRTCU PLAVČEK

POVZETEK

V najzgodnejšem obdobju otrokovega razvoja je njegova radovednost na višku, vse ga zanima, vse želi pobrati, potipati, okusiti ... V naravi so vznemirljiva igrišča, ki so priložnost za pustolovščine, presenečenja in nove izkušnje.

Narava pa je tudi življenjski prostor številnih živali. Mednje sodijo tudi različne vrste ptic. Številne ptice morajo zapustiti letna bivališča zaradi pomanjkanja hrane. To so ptice selivke. Ptice stalnice pa običajno ostanejo na istem kraju. Ker vseeno nimajo zadosti hrane, sem se odločila, da otrokom v zimskem času približam skrb za ptice v naravi. Pri tem sem želela preprečiti širjenje vsebine s preštevilnimi dejavnostmi in se osrediniti na to, kar zanima otroke. Moj namen je bil spodbujanje govora, zgodnje pismenosti, socialne spretnosti in spodbujanje ter učenje malčkov o novi vsebini.

Ugotovili smo, da je narava lahko prostor za igro, raziskovanje, domišljijo, učenje, sproščanje. Delo v naravi je potekalo bolj umirjeno kot v zaprtih prostorih. Otroke sem poskušala naučiti novih vzorcev vedenja v naravi, kar je privedlo do različnega pogovora o spoštovanju in občudovanju te, skrbi za sočloveka, ljudi, živa bitja, kot so ptice. Spoznali smo, da moramo za naravo ter živa bitja skrbeti in jo pustiti tako, kot je in s tem omogočiti prihodnjim rodovom uživanje v njej. Že otroci v prvem starostnem obdobju so tisti, ki s svojimi malimi dejanji lahko veliko prispevajo k ohranjanju in varovanju našega življenjskega okolja in varovanju Zemlje. Menimo tudi, da moramo v prihodnosti kupovati bolj premišljeno oziroma racionalno ter v skladu z ekološko ozaveščenostjo in s tem pustiti čim manj smeti za naše naslednike. Prihodnost narave je odvisna od nas, zato je skrajni čas, da otroke o tem izobražujemo in jih k temu spodbujamo že v zgodnjem otroštvu.

KLJUČNE BESEDE: ekologija, narava, skrb za ptice, reciklaža, otrok.

CARE FOR BIRDS AMONG TODDLERS IN PLAVČEK KINDERGARTEN

ABSTRACT

In the earliest period of a child's development, their curiosity is at its peak. They are interested in everything; they want to pick up everything, feel it, taste it... There are exciting playgrounds in nature that are an opportunity for adventures, surprises and new experiences.

Nature is also the habitat of many animals, including various types of birds. Many birds have to leave their annual habitats due to lack of food. These are called migratory birds. Resident birds, on the other hand, usually stay in the same place. However, since they do not have enough food, I decided to teach the children about caring for birds in nature during the winter. In the process, I wanted to prevent the passing on of content with too many activities and to focus on what interests the children. My purpose was to promote speech, early literacy, social skills, and to encourage and teach toddlers about new content.

We found that nature can be a place for play, research, imagination, learning, and relaxation. Work in nature took place more calmly than indoors. I tried to teach the children new patterns of behavior in nature, which led to a different conversation about respecting and admiring nature as it is, and about caring for fellow human beings and other living beings, such as birds. We have come to the realization that we must take care of nature and living beings, and leave nature as it is, thereby enabling future generations to enjoy it. Even children in the first age period can contribute a lot, through their small actions, to the preservation and protection of our living environment and to the protection of the Earth. We are also of the opinion that in the future we must buy more thoughtfully, or rather rationally, and in accordance with ecological awareness, thereby leaving behind as little waste as possible for our successors. The future of nature depends on us, so it is high time that we educate children about it and encourage them to act sustainably from an early age.

KEYWORDS: ecology, nature, care for birds, recycling, children.

PRIMERJAVA PODEŽELSKIH IN MESTNIH DIJAKOV O OZAVEŠČENOSTI EKOLOŠKO PRIDELANE HRANE

POVZETEK

Medtem ko se v današnjem času povečuje ozaveščenost o problematiki okolja, so se spremenili tudi odnosi potrošnikov in njihove nakupovalne navade. Nove smernice so se pojavile tudi med oglaševalci, ki svoja oglasna sporočila usmerjajo k ekološkemu marketingu in tako imenovanemu »zelenemu« oglaševanju. Ekološke oznake pridobivajo čedalje večji pomen med potrošniki, saj jim predstavljajo vir informacij o določenem izdelku ali vplivu izdelka na okolje in predvsem na posameznikovo zdravje. Ključnega pomena za zdrav razvoj mladostnikov sta uravnotežena prehrana in redna fizična aktivnost, ter njihove prehranjevalne navade. Ta članek predstavlja izsledke raziskave, ki je preučevala razmerje med podeželskimi in mestnimi dijaki o ozaveščenosti ekološko predelane hrane. Anketa je vključevala 261 dijakov, ki obiskujejo šolo od prvega do četrtega. Glavno vprašanje raziskave je bilo, ali dijaki razumejo pomen ekološko predelane hrane in ali se zavedanje o tem kakšno hrano zaužijejo, njihovo poreklo. Rezultati so razkrili, da je splošna osveščenost dijakov o pomenu zdrave prehrane in ustrezne ekološko predelane hrane zelo slaba. To se kaže pri obeh skupinah dijakov. Namen na podlagi teh ugotovitev se načrtuje razvoj strategij za povečanje zavedanja dijakov o pomembnosti ozaveščenosti ekološko predelane prehrane. Cilj moje naloge je, da dijakom zagotovimo njihovo ozaveščenost o okoljsko predelani prehrani in njihov širši pomen kakovosti izdelkov kateri ohranjajo kakovostne surovine.

KLJUČNE BESEDE: Hrana, dijaki, ekologija.

COMPARISON OF RURAL AND URBAN STUDENTS ABOUT THE AWARENESS OF ORGANICLY PRODUCED FOOD

ABSTRACT

While today's awareness of environmental issues is increasing, consumer attitudes and shopping habits have also changed. New guidelines have also appeared among advertisers who direct their advertising messages towards ecological marketing and so-called "green" advertising. Ecological labels are gaining more and more importance among consumers, as they represent a source of information about a certain product or the impact of a product on the environment and, above all, on an individual's health. A balanced diet and regular physical activity, as well as their eating habits, are of key importance for the healthy development of adolescents. This article presents the findings of a survey that examined the relationship between rural and urban schoolchildren on the awareness of organically processed food. The survey included 261 students attending the school from the first to the fourth grade. The main question of the research was whether students understand the importance of organically processed food and whether they are aware of what kind of food they consume, their origin. The results revealed that the general awareness of students about the importance of a healthy diet and appropriate organically processed food is very poor. This is evident in both groups of students. Based on these findings, it is planned to develop strategies to increase students' awareness of the importance of awareness of organically processed food. The goal of my assignment is to ensure students' awareness of environmentally processed food and their broader importance of the quality of products that preserve quality raw materials.

KEYWORDS: Food, students, ecology.

VPLIV MODNE INDUSTRIJE NA OKOLJE – ALI OBLEKA RES NAREDI ČLOVEKA?

POVZETEK

Učenke OŠ Griže so v okviru projekta Mladi raziskovalec raziskovale, kaj je najstnikom pomembno pri oblačenju, kakšne so njihove nakupovalne navade, kaj jim pomenijo oblačila in kakšen je njihov odnos do oblačil, ki jih ne nosijo več. Namen pričujočega prispevka je širiti zavedanje o prekomerni potrošnji oblačil in poiskati predloge in rešitve za zmanjšanje odpadnih oblačil. Zanimal nas je tudi odnos učencev do rabljenih oblačil, zato smo izvedli anketo na vzorcu 167 učencev 6., 7., 8. in 9. razredov OŠ Griže.

V razpravi smo predstavili ankete rezultatov, avtorice pa so izvedle enotedenski poskus s tako imenovano kapsulno garderobo, kjer so udeleženke izvedle eksperiment z omejenim številom oblačil, ki so jih nosile 7 dni zapored. Po koncu poskusa so predstavile svoje ugotovitve. Zanimalo nas je, kako se počuti človek, ki ima zjutraj na voljo dvoje hlač, 3 majice in 2 puloverja s kapuco.

KLJUČNE BESEDE: modna industrija, oblačenje, nakupovalne navade, odpadna oblačila, kapsulna garderoba.

THE IMPACT OF THE FASHION INDUSTRY ON THE ENVIRONMENT: DO THE CLOTHES MAKE THE MAN?

ABSTRACT

As a part of the project Mladi raziskovalec the older students of Griže Primary school researched the importance of teenagers' clothing, their shopping habits, the value of clothes and their attitude to clothes which are not worn anymore. The aim of this article is to spread the awareness of excessive consumption of clothing and find the solution to reduce waste clothes. We were also interested in the students' attitude towards second-hand clothes, so we carry out a survey on a sample of 167 students of 6th, 7th, 8th and 9th grades of Griže Primary school.

In the discussion we presented the results, authors of this research conducted a 1-week experiment of so-called capsule wardrobe with limited number of clothes items that they wore seven days in a row. After the experiment the students presented the results and findings. We were interested in how a person feels in case of having available only two pairs of trousers, three shirts and two hoodies.

KEYWORDS: fashion industry, clothing, shopping habits, waste clothes, capsule wardrobe