



XVII. MEDNARODNA KONFERENCA

EKOLOGIJA ZA BOLJŠI JUTRI

ZBORNİK RECENZIRANIH POVZETKOV

Rakičan, 21. 03. – 25. 03. 2022

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 (17 ; 2022 ; Rakičan)

XVII. mednarodna konferenca Ekologija za boljši jutri [Elektronski vir] : recenzirani povzetki: od 21. 03. do 25. 03. 2022, Rakičan / [urednici Monika Dajčar, Nina Kovač]. - E-zbornik. - Rakičan : RIS Dvorec, 2022

Način dostopa (URL): <https://www.ris-dr.si/go/575/3075/>

XVII._mednarodna_konferenca_EKOLOGIJA_ZA_BOLJSI_JUTRI_od_21._03._do_25._03._2022

ISBN 978-961-7130-05-8 (PDF)

COBISS.SI-ID 102076419

XVII. MEDNARODNA KONFERENCA »EKOLOGIJA ZA BOLJŠI JUTRI«

ZBORNİK REZENZIRANIH POVZETKOV: EKOLOGIJA ZA BOLJŠI JUTRI

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<https://www.ris->

[dr.si/go/575/3075/XVII._mednarodna_konferenca_EKOLOGIJA_ZA_BOLJSI_JUTRI_od_21._03._do_25._03._2022](https://www.ris-dr.si/go/575/3075/XVII._mednarodna_konferenca_EKOLOGIJA_ZA_BOLJSI_JUTRI_od_21._03._do_25._03._2022) (pdf format)

Založnik:

RIS Dvorec Rakičan

Računalniški prelom in tisk:

Robert Kološa s.p.

Leto: 2022

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

Povzetki, zbrani v zborniku, so avtentično in izvorno delo vsakega posameznika. Udeleženci mednarodne konference so odgovorni za vsebinsko različnost, jezikovno korektnost in inovativnost povzetkov.

VSEBINA

Helena Bajec	1
PRIMER SAMOSTOJNEGA TERENSKEGA DELA ZA DIJAKE PRI TEMATSKEM SKLOPU EKOLOGIJA	1
AN EXAMPLE OF INDEPENDENT FIELD WORK FOR STUDENTS IN THE THEMATIC SECTION ECOLOGY	1
Irena Balažic	2
KAKO PREDSTAVITI POJEM GLOBALNEGA SEGREVANJA PLANETA NAŠIM NAJMLAJŠIM	2
HOW TO PRESENT THE CONCEPT OF EARTH'S GLOBAL WARMING TO OUR YOUNGEST	2
Sabrina Barbarič	3
Z MAJHNIMI KORAKI DO ZMANJŠANJA ZAVRŽENE HRANE V ŠOLSKIH KUHINJAH.....	3
SMALL STEPS TOWARDS REDUCING FOOD WASTE IN SCHOOL KITCHENS.....	3
Simon Belec	4
UPORABA APLIKACIJE H5P PRI OBRAVNAVI EKOLOŠKIH VSEBIN PRI GEOGRAFIJI.....	4
THE USE OF H5P APPLICATION AT TEACHING OF ECOLOGICAL CONTENT AT GEOGRAPHY	4
Jasmina Belšak	5
STALIŠČA DIJAKOV GLEDE SPREMLJANJA POUKA IN EKOLOŠKIH VSEBIN NA DALJAVO V BIOTEHNIŠKEM IZOBRAŽEVANJU.....	5
STUDENTS' VIEWS ON FOLLOWING LESSONS AND ECOLOGY CONTENTS IN TERMS OF DISTANCE LEARNING AND AS PART OF THEIR BIOTECHNICAL EDUCATION.....	5
Anja Bizjak	6
UPORABA ODPADNEGA MATERIALA PRI OPISMENJEVANJU	6
USE OF WASTE MATERIAL IN LITERACY	6
Jurij Bizjak	7
RECIKLIRAN KRUH	7
RECYCLED BREAD	7
Melita Bizjak Radeljič	8
Z VKLJUČEVANJEM V PROJEKTE SPODBUJAMO EKOLOŠKO MISELNOST OTROK.....	8
PARTICIPATION IN PROJECTS PROMOTES THE ECOLOGICAL MENTALITY OF CHILDREN.....	8
Darinka Bosnar	10
UPORABA NAVADNE LAKOTE ZA BARVANJE OVČJE VOLNE TER RAČUNALNIŠKO VREDNOTENJE REZULTATOV	10
USE OF HEDGE BEDSTRAW FOR DYEING SHEEP WOOL AND COMPUTER EVALUATION OF RESULTS	10
Aljaž Božič	11

EKOLOŠKO OZADJE MATEMATIČNIH NALOG	11
ECOLOGICAL BACKGROUND OF MATHEMATICAL PROBLEMS	11
Simona Čamer	12
OBHODNA VADBA Z IMPROVIZIRANIMI ŠPORTNIMI PRIPOMOČKI IZ ODPADNE EMBALAŽE V POSEBNEM PROGRAMU VZGOJE IN IZOBRAŽEVANJA	12
CIRCULAR EXERCISE WITH IMPROVISED SPORTS ACCESSORIES FROM WASTE PACKAGING IN A SPECIAL PROGRAM OF EDUCATION	12
Andreja Čas	13
MATEMATIKA IN OZAVEŠČANJE UČENCEV O VARČEVANJU S PITNO VODO	13
MATHEMATICS AND RAISING STUDENTS' AWARENESS OF DRINKING WATER SAVINGS.....	13
Koraljka Čeh	14
EKO BRALNA ZNAČKA KOT EKOLOŠKI VIDIK TRAJNOSTNEGA RAZVOJA V SEDANJI DRUŽBI.....	14
ECO READING BADGE AS ECOLOGICAL ASPECT OF SUSTAINABLE DEVELOPMENT IN CURRENT SOCIETY	14
Andreja Čelan	15
KAKO SO DRUGOŠOLCI PREŽIVLJALI ČAS V NARAVI IN RAZVIJALI ČUT ZA OKOLJE.....	15
HOW SECOND GRADE STUDENTS SPENT TIME IN NATURE AND DEVELOPED A SENSE OF THE ENVIRONMENT	15
Rok Demič	16
MIKROPROPAGACIJA VRTNICE ALI VENERINE MUHOLOVKE KOT LABORATORIJSKA VAJA	16
MICROPROPAGATION OF ROSE OR VENUS FLY TRAP IN LABORATORY CLASS	16
Tanja Dobnik	17
RAZVIJANJE ČUTA DO OKOLJA V PRVEM RAZREDU.....	17
DEVELOPING A SENSE OF THE ENVIRONMENT IN FIRST GRADE	17
Simona Dreu	18
PROJEKT POTUJEMO PO SVETU Z EKOLOŠKIMI VSEBINAMI	18
PROJECT – WE ARE TRAVELING AROUND THE WORLD WITH ECOLOGICAL CONTENT	18
Marta Fister	19
ŠOLSKI VRT NA ŠOLSKEM CENTRU ZA POŠTO, EKONOMIJO IN TELEKOMUNIKACIJE LJUBLJANA POD NOVIM MENTORSTVOM	19
NEW MENTORS OF THE SCHOOL GARDEN AT THE SCHOOL CENTRE FOR POSTAL SERVICES, ECONOMICS AND TELECOMMUNICATIONS IN LJUBLJANA.....	19
Franc Gajšek	20
VPLIV OGREVALNIH SISTEMOV NA OKOLJE SKOZI OČI DIJAKOV PROGRAMA INŠTALATER STROJNIH INŠTALACIJ.....	20

THE IMPACT OF HEATING SYSTEMS ON THE ENVIRONMENT AS SEEN THROUGH THE EYES OF STUDENTS OF THE MECHANICAL INSTALLER PROGRAM.....	20
Simona Gljuk	21
OKOLJSKA VZGOJA PRI SLOVENŠČINI V SREDNJEM STROKOVNEM IZOBRAŽEVANJU (Z ROKO V ROKI S PROGRAMI EKOŠOLE)	21
ENVIRONMENTAL EDUCATION INTEGRATED IN THE SUBJECT SLOVENIAN LANGUAGE IN SECONDARY TECHNICAL COURSE (HAND IN HAND WITH THE ECO-SCHOOL PROGRAMME)	21
Margaret Godec	22
RAZVIJANJE OZAVEŠČANJA O SKRBI ZA OKOLJE V ODDELKU PODALJŠANEGA BIVANJA.....	22
DEVELOPING ENVIRONMENTAL AWARENESS IN AFTER SCHOOL CARE.....	22
Urša Govekar	23
S SODELOVANJEM PRI PROJEKTU TURIZMU POMAGA LASTNA GLAVA SPODBUJAMO POVEZOVANJE UČENCEV Z LOKALNIMI TURISTIČNIMI INSTITUCIJAMI IN VZGAJAMO MLADE TURISTE	23
BY PARTICIPATING IN THE PROJECT »TURIZMU POMAGA LASTNA GLAVA« WE ENCOURAGE PUPILS TO CONNECT WITH LOCAL TOURIST INSTITUTIONS AND EDUCATE YOUNG TOURISTS.....	23
Suzana Grah	24
KAKO K OKOLJSKIM VSEBINAM PRITEGNEMO UČENCE Z AVTIZMOM.....	24
HOW TO ENGAGE STUDENTS WITH AUTISM IN ENVIRONMENTAL CONTENT.....	24
Mojca Hanželj	25
POGONSKA SREDSTVA PRIHODNOSTI V AVTOMOBILSKI INDUSTRIJI.....	25
FUELS OF THE FUTURE IN THE AUTOMOTIVE INDUSTRY	25
Natalija Herič	26
OZAVEŠČANJE UČENCEV O POMENU IN VAROVANJU VODE V OKVIRU PROJEKTA ERASMUS+ WAT.EDU	26
RAISING AWARENESS OF STUDENTS ABOUT THE IMPORTANCE AND PROTECTION OF WATER WITHIN THE ERASMUS+ PROJECT WAT.EDU.....	26
Zdenka Holsedl Pertoci	27
VKLJUČEVANJE OKOLJSKIH VSEBIN V POUK SLOVENŠČINE.....	27
INCLUSION OF ENVIRONMENTAL TOPICS INTO CLASSES OF SLOVENE LANGUAGE.....	27
Branka Horvat	28
DEJAVNOSTI, KI UČENCE SPODBUDIJO K PRIJAZNOSTI DO OKOLJA.....	28
ACTIVITIES THAT STIMULATE PUPILS TO BE KIND TO ENVIRONMENT	28
Klavdija Janež	29
USTVARJALNE EKOLOŠKE DELAVNICE V 1. RAZREDU	29
CREATIVE ECOLOGY WORKSHOPS IN FIRST GRADE	29
Maruša Jarc Stergar	30
EKO PODALJŠANO BIVANJE NA DALJAVO	30
ECO EXTENDED STAY WHILE DISTANCE LEARNING	30

Marta Jemenšek	31
ŽIVALSKA LUTKA IZ ODPADNE EMBALAŽE OŽIVI.....	31
ANIMAL PUPPET FROM WASTE PACKAGING COMES TO LIFE	31
Dimitrij Jeraj	32
PRISPEVEK K USTVARJALNI ŠOLI – KULTIVACIJA, ŽIVLJENJSKI KROG	
USTVARJANJA MED ČLOVEKOM IN NARAVO	32
CONTRIBUTION TO THE CREATIVE SCHOOL - CULTIVATION, THE LIFE CYCLE	
OF CREATION BETWEEN MAN AND NATURE	32
Danica Jurič	33
ZELIŠČNI VRT V ČŠOD GORENJE – NARAVNA RAZISKOVALNA UČILNICA ...	33
HERB GARDEN IN ČŠOD GORENJE – NATURAL RESEARCH CLASSROOM	33
Dragica Jurkušek	34
INTERESNA DEJAVNOST MALI EKOLOGI KOT PRIMER DOBRE PRAKSE V	
OSNOVNI ŠOLI.....	34
THE LITTLE ECOLOGISTS ACTIVITY AS AN EXAMPLE OF GOOD PRACTICE IN	
PRIMARY SCHOOL.....	34
Tea Kavčič	35
ZAVAROVANA OBMOČJA SLOVENIJE (PRIMER UČNE URE).....	35
PROTECTED AREAS IN SLOVENIA (LESSON EXAMPLE).....	35
Jenny Annemarie Kelner	36
RAZISKOVANJE ZVOČNEGA ONESNAŽEVANJA IN HRUPA V ŠOLSKIH	
PROSTORIH Z UČENCI RAZREDNE STOPNJE	36
EXPLORING SOUND POLLUTION AND NOISE ON SCHOOL PREMISES WITH	
STUDENTS OF THE FIRST GRADES OF PRIMARY SCHOOL	36
Jasmina Klakočar	37
EKOLOŠKE AKTIVNOSTI V 3. RAZREDU OSNOVNE ŠOLE.....	37
ECOLOGICAL ACTIVITIES IN THE 3RD GRADE OF PRIMARY SCHOOL.....	37
Sonja Klemen	38
PET KORAKOV OKOLJSKE VZGOJE V PRVI TRIADI OSNOVNE ŠOLE.....	38
FIVE STEPS OF ENVIROMENTAL EDUCATION IN FIRST YEARS OF PRIMARY	
SCHOOL.....	38
Svetlana Klemenčič	39
OBRAVNAVA EKOLOŠKIH POSLEDIC COVID 19 SKOZI NEUMETNOSTNA	
BESEDILA.....	39
ADDRESSING THE ECOLOGICAL CONSEQUENCES OF COVID 19 THROUGH	
NON-LITERARY TEXTS.....	39
Mojca Kline	40
OZAVEŠČANJE UČENCEV O POMENU EKOLOŠKO IN LOKALNO PRIDELANE	
HRANE	40
RAISING STUDENTS' AWARENESS OF THE IMPORTANCE OF ORGANICALLY	
AND LOCALLY PRODUCED FOOD	40
Darja Kolarič - Fir	41
EKOLOŠKE VSEBINE IN TRENDI V VZGOJNO-IZOBRAŽEVALNIH	
PROGRAMIH.....	41

ECOLOGY AND TRENDS IN EDUCATIONAL PROGRAMES	41
Marija Kolmanič Bučar	42
VAROVANJE EKOLOŠKO POMEMBNIH OBMOČIJ IN UPORABA INOVATIVNIH UČNIH ORODIJ IN PRISTOPOV PRI TERENSKEM DELU - SPLETNI HERBARIJ NA PRIMERU MARIBORSKEGA OTOKA	42
PROTECTION OF ECOLOGICALLY IMPORTANT AREAS AND USE INNOVATIVE LEARNING TOOLS AND APPROACHES IN FIELD WORK - ONLINE HERBARIA ON THE EXAMPLE OF MARIBOR ISLAND	42
Nataša Kordiš	43
POGANJAM PEDALA, TOREJ SEM - EKOLOŠKI DOPUST	43
I CYCLE THEREFORE I AM - ECO VACATION	43
Melita Kosaber	44
RAZISKOVALNO DELO KOT OBLIKA IZOBRAŽEVANJA O EKOLOŠKIH VSEBINAH.....	44
RESEARCH AS A FORM OF EDUCATION ON ECOLOGICAL ISSUES.....	44
Natalija Kovše	45
PROJEKTI EKOŠOLE NA DALJAVO	45
ECO-SCHOOL PROJECTS PREFORMED REMOTELY	45
Mihaela Krapež	46
»KORONA EKOLOGIJA«.....	46
»CORONA ECOLOGY«.....	46
Bojana Krašovec	47
EKOLOŠKO OZAVEŠČANJE OB IZDELAVI MATEMATIČNIH IGER V 1. RAZREDU OSNOVNE ŠOLE.....	47
ECOLOGICAL AWARENESS WITH PRODUCTION OF MATHEMATICAL GAMES IN THE FIRST GRADE OF ELEMENTARY SCHOOL	47
Zvezdana Kuhar	48
EKOLOŠKE VSEBINE SKOZI DOMIŠLJIJSKI SVET NAŠE DEDIŠČINE	48
ECOLOGICAL CONTENT THROUGH THE IMAGINARY WORLD OF OUR HERITAGE	48
Mateja Lašič	49
MEDGENERACIJSKO OBDELOVANJE POLJA NA EKOLOŠKI NAČIN.....	49
INTERGENERATIONAL FIELD TREATMENT IN AN ECOLOGICAL WAY	49
Andrej Leskovic	50
UTOPIČNE RAZSEŽNOSTI EKOFILOZOFSKIH VIZIJ ČLOVEKOVEGA SOŽITJA Z NARAVO.....	50
UTOPIAN DIMENSIONS OF ECOPHILOSOPHICAL VISIONS OF HUMAN COEXISTENCE WITH NATURE	50
Simona Lobnik	51
PRIHODNOST BLAGOSTANJA NARAVE LEŽI V ROKAH NAŠIH OTROK	51
THE FUTURE OF NATURAL WELFARE LIES WITHIN HANDS OF OUR CHILDREN.....	51
Darja Marčič	52
EKOLOŠKO IN TRAJNOSTNO RAZMIŠLJANJE PO NEMŠKO	52

THINKING IN GERMAN ABOUT ECOLOGY AND SUSTAINABLE DEVELOPMENT	52
Vlasta Marjanovič	53
OBRAVNAVANJE EKOLOŠKIH VSEBIN PRI POUKU SLOVENŠČINE V SREDNJIH ŠOLAH.....	53
DISCUSSION OF ECOLOGICAL CONTENT IN SUBJECT SLOVENIAN LANGUAGE IN UPPER SECONDARY EDUCATION	53
Gregor Markelj	54
BIVANJE V SODOBNEM SVETU - PROBLEM PLASTIKE.....	54
LIVING IN THE MODERN WORLD - THE PROBLEM OF PLASTIC.....	54
Vesna Markelj	55
PREGRETA CELINA – GLOBALNO SEGREVANJE V EVROPI.....	55
OVERHEATED CONTINENT – GLOBAL WARMING IN EUROPE	55
Aleksandra Matjašič	56
OHRANJANJE PRETEKLOSTI ZA BOLJŠO PRIHODNOST.....	56
PRESERVING PAST FOR THE FUTURE.....	56
Nada Medved	57
EKONOMSKI RAZVOJ MALIH KMETIJ	57
ECONOMICAL DEVELOPMENT OF SMALL FARMS	57
Darja Mlakar	58
EKO DELEGATI V ŠOLI	58
ECO DELEGATES AT SCHOOL	58
Tina Mojzer	59
RAZISKOVALNA DEJAVNOST NA ŠOLI, POVEZANA Z EKOLOGIJO.....	59
RESEARCH ACTIVITY AT THE SCHOOL RELATED TO ECOLOGY	59
Dario Molnar	60
POSLEDICE ZAUSTAVITVE TERMoeLEKTRARNE ŠOŠTANJ	60
SHUTTING DOWN THE ŠOŠTANJ THERMOELECTRIC PLANT AND ITS CONSEQUENCES ON THE ENVIRONMENT	60
Barbara Muhič	61
EKO TURISTIČNA UČNA POT OB PŠATI IN KAMNIŠKI BISTRICI	61
ECO TOURIST LEARNING TRAIL NEAR PŠATI AND KAMNIŠKA BISTRICA	61
Tatjana Novak	62
LIKOVNA RECIKLAŽA OSTANKOV GRADBENIH MATERIALOV, ODPADNE EMBALAŽE IN STARIH OBLAČIL	62
ART RECYCLE OF CONSTRUCTION MATERIALS RESIDUES, WASTE PACKAGING AND OLD CLOTHING	62
Vesna Obrez	63
NE ZAVRZI, RAJE PONOVRNO UPORABI	63
DO NOT DISPOSE, BETTER USE AGAIN	63
Darko Oskomič	64
RAZGRADNJA NAPRAV IN LOČEVANJE ODPADKOV PRI PRAKTIČNEM POUKU ELEKTRO SMERI	64

DECOMPOSITION OF DEVICES AND SEPARATION OF WASTE IN PRACTICAL EDUCATION OF ELECTRICAL DIRECTIONS	64
Andreja Osredkar	65
DIDAKTIČNA IGRA »OČISTIMO RIBNIK« KOT UČNI PRIPOMOČEK V MODULU BIVANJE IN OKOLJE	65
DIDACTIC BOARD GAME »LET'S CLEAN THE POND« AS A TEACHING AID IN THE MODULE LIVING AND ENVIRONMENT	65
Rajko Palatin	66
SONČNA ELEKTRARNA ZA LASTNO RABO PROIZVEDENE ELEKTRIČNE ENERGIJE	66
SOLAR POWER PLANTS FOR A PROPER USAGE OF PRODUCED ELECTRICITY	66
Žanet Pavlica	67
PRIMERI UČNIH UR OKOLJSKE VZGOJE IN IZDELAVA DIDAKTIČNIH IGER IZ ODPADNEGA MATERIALA PRI POUKU ANGLEŠČINE V 3. RAZREDU OSNOVNE ŠOLE	67
EXAMPLES OF ENVIRONMENTAL EDUCATION LESSONS AND MAKING DIDACTIC GAMES FROM WASTE MATERIAL IN ENGLISH CLASSES IN THE 3RD GRADE OF PRIMARY SCHOOL	67
Gašper Pernek	69
VKLJUČEVANJE KEMIJE K POUKU GEOGRAFIJE: EKOLOŠKE TEŽAVE NORDIJSKIH DRŽAV – MEDPREDMETNA POVEZAVA	69
INTRODUCING CHEMISTRY INTO GEOGRAPHY LESSONS: ECOLOGICAL PROBLEMS IN NORDIC COUNTRIES – CROSS-CURRICULAR LESSON	69
Mateja Petan	70
»ZELENI« PROJEKTI V PRVEM TRILETJU OSNOVNIH ŠOL	70
»GREEN« PROJECTS IN THE FIRST YEARS OF ELEMENTARY SCHOOLS	70
Urška Petek	71
PRIDOBIVANJE PRVIH IZKUŠENJ V SVETU EKOLOGIJE	71
GAINING THE FIRST EXPERIENCE IN THE WORLD OF ECOLOGY	71
Anela Plazar	72
Z EKOLOGIJO V PRIHODNOST	72
WITH ECOLOGY INTO THE FUTURE	72
Kristina Reberšek	73
VKLJUČEVANJE STARŠEV V OKOLJSKO VZGOJO V ČASU ŠOLANJA NA DALJAVO	73
THE INVOLVEMENT OF PARENTS IN ENVIRONMENTAL EDUCATION DURING DISTANCE LEARNING	73
Vesna Rižnik	74
IZDELAVA DRUŽABNIH IN DIDAKTIČNIH IGER IZ PLASTIČNIH ZAMAŠKOV V POSEBNEM PROGRAMU VZGOJE IN IZOBRAŽEVANJA	74
MANUFACTURE OF SOCIAL AND DIDACTIC GAMES FROM PLASTIC STOPPERS IN A SPECIAL EDUCATION PROGRAM	74
Irena Sajovic - Šuštar	75
ŠTIRJE NAČINI, KAKO GLASBA IN ZVOK VPLIVATA NA ČLOVEKA	75

THE FOUR WAYS MUSIC AND SOUND AFFECTS US	75
Sergeja Sluga	76
BATERIJE – GONILO ZELENIH TEHNOLOGIJ.....	76
BATTERIES – DRIVING FORCES OF GREEN TECHNOLOGIES	76
Mojca Sovič	77
S KOKOŠKO ROZI K TRAJNOSTNEMU NAČINU ŽIVLJENJA NA I. OŠ ROGAŠKA SLATINA.....	77
WITH CHICKEN ROSES TO A SUSTAINABLE LIFESTYLE ON I. ROGAŠKA SLATINA PRIMARY SCHOOL.....	77
Nina Sovinc	78
SKRB ZA PTICE POZIMI	78
CARING FOR BIRDS IN WINTERTIME	78
Helena Sternad	79
IZDELAVA PROJEKTNE NALOGE Z VKLJUČEVANJEM VSEBIN KROŽNEGA GOSPODARSTVA V IZOBRAŽEVALNEM PROGRAMU TEHNIK RAČUNALNIŠTVA.....	79
PREPARATION OF A PROJECT TASK BY INCLUDING THE CONTENTS OF THE CIRCULAR ECONOMY IN THE EDUCATIONAL PROGRAM OF COMPUTER TECHNICIANS	79
Natalija Šetina	80
OPAZOVANJE ČLOVEKOVEGA VPLIVA NA OKOLJE IN VNAŠANJE TOČK NA ZEMLJEVID Z UPORABO SPLETNE STRANI GOOGLE MOJI ZEMLJEVIDI.....	80
OBSERVING THE EFFECT OF HUMANS ON THE ENVIRONMENT AND INSETTING POINTS OF INTEREST ON A MAP WITH THE USE OF GOOGLE MY MAPS	80
Tatjana Špur	81
INTERDISCIPLINARNI TEMATSKI SKLOP GIBANJE IN NARAVA V SINERGIJI..	81
THE INTERDISCIPLINARY MODULE MOVEMENT AND NATURE IN SYNERGY	81
Vesna Štukelj	82
ALTERNATIVNI PRISTOP (SOCIALNO PEDAGOŠKO JAHANJE) V POLJU ZAVODSKE VZGOJE	82
ALTERNATIVE APPROACH (SOCIALN PEDAGOGICAL HORSE RIDING) IN THE FIELD OF INSTITUTIONALISED EDUCATION.....	82
Tjaša Šuc Visenjak	83
EKOLOGIJA IN ANGLEŠČINA OB DNEVU ZEMLJE	83
ECOLOGY AND ENGLISH ON EARTH DAY	83
Barbara Turk	84
EKOLOGIJA – POUČEVANJE S POMOČJO PROJEKTOV	84
ECOLOGY – TEACHNIG WITH HELP OF PROJECTS.....	84
Valentina Uplaznik Tičič	85
EKOLOŠKE TEME PRI POUKU ANGLEŠČINE.....	85
ECOLOGY IN ESL CLASSES	85
Teodor Varga	86
NAKUPOVALNE NAVADE EKOLOŠKIH IZDELKOV DIJAKOV DVOJEZIČNE SREDNJE ŠOLE LENDAVALA	86

STUDENTS' SHOPPING HABITS OF ECOLOGICAL PRODUCTS AT THE BILINGUAL HIGH SCHOOL LENDA VA	86
Jasmina Vaupotič	87
EKOLOŠKE VSEBINE PRI POUKU FIZIKE	87
ECOLOGICAL CONTENTS IN PHYSICS LESSONS	87
Marjan Verce	88
EKOLOGIJA ODPADKOV PRI PRAKTIČNEM POUKU V ŠOLSKIH DELAVNICAH IN RAVNANJE Z NJIMI.....	88
WASTE ECOLOGY IN PRACTICAL LESSONS IN SCHOOL WORKSHOPS AND HANDLING.....	88
Ervin Vičič	90
MERITEV TOPLOTNIH IZGUB MED ZRAČENJEM UČILNICE	90
MEASURING HEAT LOSS DURING CLASSROOM VENTILATION	90
Andreja Vrtovšek	91
ZEMLJA V ROKAH NAŠIH NAJMLAJŠIH	91
EARTH IN THE HANDS OF OUR YOUNGEST.....	91
Srđan Vuković	92
POUČEVANJE TRAJNOSTNEGA RAZVOJA SKOZI PODJETNIŠKE PROJEKTE IN STROKOVNE MODULE V SREDNJEŠOLSKEM PROGRAMU EKONOMSKI TEHNIK.....	92
TEACHING SUSTAINABLE DEVELOPMENT THROUGH ENTREPRENEURIAL PROJECTS AND PROFESSIONAL MODULES IN THE HIGH SCHOOL PROGRAM ECONOMIC TECHNICIAN	92
Tina Zupanc	93
EKOLOGIJA SKOZI SREDNJEŠOLSKO MATEMATIKO.....	93
ECOLOGY THROUGH SECONDARY SCHOOL MATHEMATICS	93
France Žagar	94
OBRAVNAVA EKOLOŠKIH VSEBIN PRI VZGOJNEM DELU V DIJAŠKEM DOMU TABOR	94
THE DISCUSSION OF ECOLOGICAL CONTENTS AT EDUCATIONAL WORK IN BOARDING SCHOOL TABOR	94
Samo Žerjal	95
LOKALNA PRIDELAVA HRANE KOT DEL POKLICNE ORIENTACIJE.....	95
LOCAL FOOD PRODUCTION AS PART OF VOCATIONAL ORIENTATION	95

PRIMER SAMOSTOJNEGA TERENSKEGA DELA ZA DIJAKE PRI TEMATSKEM SKLOPU EKOLOGIJA

POVZETEK

Ptice so eden najpomembnejših bioindikatorjev stanja naravnega okolja, saj so zelo občutljive na spremembe habitatov. Ker jih je dokaj enostavno popisati, so v ekologiji pogosto uporabljeni organizem za preučevanje stanja ekosistema. Pri pouku biologije smo pri ekoloških vsebinah izvedli samostojno terensko delo za dijake na temo preučevanja ptic. Najprej smo opravili nekajurno strokovno ekskurzijo s strokovnjakom s področja ptic na območju večje biotske pestrosti ptic. Temu je sledila individualna samostojna terenska naloga. Dijaki so najprej s pomočjo slikovnega gradiva »Ptice okoli nas v naseljih« in z metodami privabljanja ptic v izbranem delu dneva opazovali ptice okrog svojega doma. Zapisali so vrste in število opaženih osebkov. Nato so v literaturi poiskali podatke o eni izbrani vrsti ptice, ki so jo opazili in preučili terenski popisni list. Nadaljevali so s samostojnim terenskim delom, ki je vključevalo zapis podatkov o lokaciji opazovane ptice, času opazovanja, določanju nekaterih abiotičnih dejavnikov, izbiri uporabljenih metod za opazovanje ter opisu značilnosti in opaženih vedenj izbrane ptice. Nazadnje so na podlagi zbranih podatkov na terenu zapisali še načrt eksperimenta. Aktivnost, ki je obsegala 5 šolskih ur pri izbirnem predmetu biologija se je izkazala kot zelo uspešna, saj so bili dijaki sami odgovorni za načrt izvedbe, izbiro lokacije, izbiro vrste ptice ter kvalitetno zbrane in predstavljene podatke. Prav tako takšni pristopi, ki spodbujajo dijakovo samostojno delo v naravi, prispevajo k pozitivnemu odnosu do narave.

KLJUČNE BESEDE: Biotska pestrost, ekologija, ptice, terensko delo.

AN EXAMPLE OF INDEPENDENT FIELD WORK FOR STUDENTS IN THE THEMATIC SECTION ECOLOGY

ABSTRACT

Birds are one of the most important bioindicators of the state of the natural environment, as they are very sensitive to changes in habitats. Because they are fairly easy to census, they are often used in ecology to study the state of the ecosystem. In the biology class, we conducted independent field work for students on the topic of studying birds. Before the activity, we have made a few-hour excursion with an expert who explained us great n the field of birds in the area of greater biodiversity of birds. This was followed by an individual independent fieldwork. The students first observed birds around their home with the help of pictorial material "Birds around us in settlements" and methods of attracting birds in the selected part of the day. They recorded species and numbered specimens observed. They then searched the literature for data about one selected bird species observed and examined the field census sheet. They continued with independent field work, which included recording data on the location of the observed bird, time of observation, determination of some abiotic factors, selection of methods used for observation and description of characteristics and observed behaviour of the selected bird. Finally, based on the data collected in the field, they wrote down a plan of the experiment. The activity, which included 5 school hours in the optional subject biology, proved to be very successful, as the students were responsible for the implementation plan, site selection, bird species selection and quality data collected and presented. Also, such approaches, which encourage the student's independent work in nature, contribute to a positive attitude towards nature.

KEYWORDS: Biodiversity, birds, ecology, fieldwork.

KAKO PREDSTAVITI POJEM GLOBALNEGA SEGREVANJA PLANETA NAŠIM NAJMLAJŠIM

POVZETEK

Ob koncu vsakoletnih Konferenc ZN o podnebnih spremembah, tokratna (COP26) v Glasgowu v mesecu novembru 2021 že 26. po vrsti, v vseh medijih zaokrožijo novice, da se kaj bistvenega in učinkovitejšega ni dogovorilo. To je bil tudi moj povod, da sem pričela razmišljati v smeri, da je potrebno ozavestiti in opremiti z dejstvi in spoznanji o globalnem segrevanju, o učinkih ter posledicah, že naše najmlajše po osnovnih šolah. Za začetek našega "Podnebnega EKO meseca" so bili učenci 1. razreda seznanjeni z najočitnejšimi in najpomembnejšimi posledicami globalnega segrevanja. Ko so učenci zaznali in ponotranjili posledice, ki so najmlajšim otrokom bližje in razumljivejše, sem jim z različnimi načini in metodam predstavila vzroke globalnega segrevanja. Skupaj smo sestavili in zgradili tudi »razredno toplo gredo« in s pomočjo lastne izkušnje občutili in spoznali toplotni učinek, ki se dnevno dogaja v naravi. Ob zaključku našega raziskovalnega meseca smo predstavili rešitve in predloge, ki jih lahko dosežemo, obdržimo in uresničujemo kot posamezniki in tako prispevamo tudi svoj delež k ohranjanju in varovanju našega planeta za nas in prihodnje generacije.

KLJUČNE BESEDE: globalno segrevanje, učinek tople grede, podnebne spremembe.

HOW TO PRESENT THE CONCEPT OF EARTH'S GLOBAL WARMING TO OUR YOUNGEST

ABSTRACT

At the end of the annual UN Conference about Climate Change, this time (COP26) in Glasgow in November 2021, the 26th in a row, all the media rounded up the news that nothing significant or helpful has been agreed upon. This was also my inspiration for starting to think that it is necessary to raise awareness about the facts and insights of global warming, which includes effects and consequences which must be taught to our youngest children in primary school. To start our "Climate ECO Month", 1st grade students were introduced to the most obvious and important repercussions of the said theme. When the students perceived and internalized the specific consequences that are closer and more understandable to the youngest of children, I presented the causes of global warming to them in various ways and methods. Together we also assembled and built a "class greenhouse" and with the help of recent experiences we felt and got to know the thermal power which is active in nature on a daily basis. At the end of our research month, we presented the solutions with the proposal that we can achieve, maintain and express as individuals and thus also contribute our share in preserving and protecting our planet for the next generations.

KEYWORDS: global warming, greenhouse effect, climate changes.

Z MAJHNIMI KORAKI DO ZMANJŠANJA ZAVRŽENE HRANE V ŠOLSKIH KUHINJAH

POVZETEK

Živimo v času, ko hrana prevečkrat konča med našimi odpadki. Zadnje raziskave kažejo, da vsak Slovenec letno zavrže 68 kilogramov hrane, na globalni ravni zavržemo več kot milijardo ton hrane, po drugi strani pa vsako leto zaradi podhranjenosti umre 3,1 milijona otrok. Ljudje smo odvisni od hrane, a smo kljub temu izgubili razumevanje njene vrednosti in pomena. Zavržena hrana je zelo aktualen in pereč problem po svetu, saj se pojavlja v gospodinjstvih, pri pridelovalcih, v trgovinah, restavracijah, šolah, vrtcih in drugih ustanovah. Količina zavržene hrane se v slovenskih šolskih kuhinjah zadnjih nekaj let povečuje, prav tako se pri otrocih vedno bolj kažejo vzorci prehranjevalnih navad, ki so preneseni od doma. Cilj vzgojno-izobraževalnih institucij je, da vzgajajo in izobražujejo za trajnostni razvoj. Po pogovoru z učenci iz 6., 7., in 8. razreda sem ugotovila, da so bili slabo ozaveščeni o zavrženi hrani in njenih posledicah, zato je moj cilj, da bom v letošnjem in naslednjem šolskem letu na naši šoli namenila velik poudarek ozaveščanju o odgovornem ravnanju s hrano, prehranski pismenosti in razumevanju posledic, ki jih prinaša zavržena hrana. Z do sedaj vključenimi dejavnostmi mi je pri učencih uspelo vzbuditi višjo motiviranost za aktivno iskanje informacij o zavrženi hrani. Učenci so prepoznali pomen aktualne teme za svoje življenje, družbo, v kateri živijo, in naš planet, saj so ji namenili pozornost in večjo skrb. Izpod njihovih ustvarjalnih rok so že nastali plakati, ki krasijo naše hodnike. Na podlagi dosedanje lastne aktivnosti so učenci postali bolj ozaveščeni o zavrženi hrani ter pridobili novo znanje na področju prehranske pismenosti. Če spremenimo svoje navade, lahko z majhnimi koraki pripomoremo k varovanju okolja. Navade učencev kot tudi vseh strokovnih delavcev na šoli lahko vplivajo na ozaveščanje širše družbe o pomenu odgovornega ravnanja s porabo hrane in odnosa do nje.

KLJUČNE BESEDE: odpadki, zavržena hrana, odnos do hrane, šolska kuhinja, okolje.

SMALL STEPS TOWARDS REDUCING FOOD WASTE IN SCHOOL KITCHENS

ABSTRACT

We live in a time when food ends up among our waste too often. Recent research shows that on one hand, every Slovene throws away 68 kilograms of food per year, we throw away more than a billion tons of food globally, but on the other hand, 3.1 million children die of malnutrition every year. Us humans are addicted to food, but we have nevertheless lost our understanding of its value and importance. Discarded food is a very current and burning problem around the world, as it occurs in households, at growers, shops, restaurants, schools, kindergartens and other institutions. The amount of food discarded in Slovenian school kitchens has been increasing in the last few years, and children are increasingly showing patterns of eating habits that have been transferred from home. The goal of educational institutions is to educate for sustainable development. After talking to 6th, 7th, and 8th graders, I found that they were poorly aware of discarded food and its consequences, so my goal is to put a lot of emphasis on raising awareness at our school this year and the next one on responsible food management, nutrition literacy and understanding the consequences of discarded food. With the activities implemented so far, I was able to increase the motivation in students to actively seek information about discarded food. The students recognized the importance of the current topic for their lives, the society in which they live, and our planet, as they paid attention and greater care to it. They have created posters, which are already put up in our hallways. Based on their own activities so far, students have become more aware of discarded food and gained new knowledge in the field of nutrition literacy. If we change our habits, we can help protect the environment with small steps. The habits of students as well as all employees at the school can influence the awareness of the wider society about the importance of responsible management of food consumption and attitude towards it.

KEYWORDS: waste, food waste, attitude towards food, school kitchen, environment.

UPORABA APLIKACIJE H5P PRI OBRAVNAVI EKOLOŠKIH VSEBIN PRI GEOGRAFIJI

POVZETEK

Človeštvo v 21. stoletju je v času vse večjih ekoloških problemov v svetu pred izzivi zelene in digitalne tranzicije družbe in gospodarstva. Zelo pomembno je, da se s tovrstnimi izzivi srečajo otroci že v zgodnjih letih in jih ozavešijo, kajti v njihovih rokah je prihodnost sveta. Na Osnovni šoli Kajetana Koviča Radenci dajemo velik poudarek smiselni uporabi digitalne tehnologije v vzgojno-izobraževalnem procesu kot tudi aktualnim okoljskim vsebinam. V članku bom prikazal možnost uporabe aplikacij ustvarjenih v H5P znotraj programa Moodle za usvajanje in utrjevanje ekoloških vsebin kot nadgradnjo vzgojno-izobraževalnega procesa. Učenci so ob pomoči vtičnika H5P znotraj programa Moodle uporabljali interaktivne vsebine ob spoznavanju ekoloških problemov na primerih krčenja tropskega deževnega gozda in globalnega segrevanja ozračja. Vtičnik H5P omogoča elemente igrifikacije in vizualizacije, v skladu s formativnim spremljanjem ter zagotavlja pridobiti dokaze o učenju in povratne informacij tako za učitelja kot učence. Na takšen način so učenci postavljeni v središče učnega procesa in razvijajo digitalne kompetence ob smiselni rabi tehnologije.

KLJUČNE BESEDE: ekologija, geografija, H5P, Moodle.

THE USE OF H5P APPLICATION AT TEACHING OF ECOLOGICAL CONTENT AT GEOGRAPHY

ABSTRACT

In the 21st century, in the time of growing ecological problems in the world, the humanity is facing the challenges of the green and digital transition of society and economy. It is very important that children face such challenges from an early age and make them aware, because the future of the world is in their hands. At the Elementary School Kajetan Kovič in Radenci, we place great emphasis on the meaningful use of digital technology in the educational process as well as on environmental content. In this article, we will show the possibilities of use of interactive games created in H5P application within the Moodle program to obtain and consolidate the environmental content as an upgrade of the educational process. With the help of the H5P plug-in students used interactive content to learn about ecological problems in the cases of deforestation of rainforest and global warming. The H5P plug-in provides elements of gamification and visualization, in accordance with formative monitoring, and provides evidence of learning and feedback for both teacher and students. In this way, students are placed at the centre of the learning process and develop digital competencies with a meaningful use of technology.

KEYWORDS: ecology, geography, H5P, Moodle.

STALIŠČA DIJAKOV GLEDE SPREMLJANJA POUKA IN EKOLOŠKIH VSEBIN NA DALJAVO V BIOTEHNIŠKEM IZOBRAŽEVANJU

POVZETEK

V začetku marca 2020 je bila v Sloveniji razglašena epidemija virusa SARS-CoV-2. Posledica so bili številni ukrepi za zaježitev širjenja virusa, med drugimi tudi zaprtje vzgojno-izobraževalnih ustanov, kar je vsem udeležencem izobraževanja predstavljalo velik izziv. Ustaljen način dela je čez noč prešel na izobraževanje (poučevanje, učenje) na daljavo, kar je učitelje kot tudi učeče prisililo v takojšnjo spremembo ustaljenega načina dela. Klasičen pouk je zamenjala informacijsko-komunikacijska tehnologija. Stališča dijakov glede spremljanja pouka na daljavo, sem pri dijakih Šolskega centra Šentjur preverjala s pomočjo spletnega vprašalnika. Osredotočila sem se na izzive, s katerimi so se dijaki v tem obdobju spopadali, na dejavnike učnega okolja doma, stališča dijakov do ocenjevanja in vrednotenja znanja ter primerjavo spremljanja družboslovnih in naravoslovnih predmetov na daljavo. Sodelovali so dijaki srednjega strokovnega in poklicno-tehniškega izobraževanja. Poleg pouka v sklopu izobraževalnega procesa potekajo tudi številne druge dejavnosti. Primerjala sem dejavnosti interdisciplinarnega dne, ki je vključeval raznovrstne delavnice ekoloških vsebin in je bil izveden po hibridnem modelu, delno v šoli in delno na daljavo. V vseh primerih se je izkazalo, da je učne cilje mogoče doseči tudi na daljavo, čeprav je treba spremeniti pristop in način dela. Dijaki se hitro prilagajajo danim situacijam, zato je dobro sodelovanje med učitelji in učenci ključ do skupnega uspeha.

KLJUČNE BESEDE: izobraževanje na daljavo, SARS-CoV-2, IKT, ekološke vsebine.

STUDENTS' VIEWS ON FOLLOWING LESSONS AND ECOLOGY CONTENTS IN TERMS OF DISTANCE LEARNING AND AS PART OF THEIR BIOTECHNICAL EDUCATION

ABSTRACT

In the beginning of March 2020, a state of epidemic was declared in the Republic of Slovenia on account of SARS-CoV-2. This led to numerous measures in order to contain the spreading of the virus, including the closure of educational institutions which presented a major challenge for the learners. Overnight, the established mode of work was replaced with distance learning (teaching and learning) which forced both the teachers and the students to immediately make changes as well. Standard lessons gave room to the information and communications technology. The views of the students at Šolski Center Šentjur on following the lessons remotely were researched using an online questionnaire. The focus was on the challenges which the students were faced with during this period, the factors of the learning environment at home, the students' views on knowledge assessment and valuation, as well as on comparing their ability to follow both natural and social science subjects in a remote setting. The research involved the students of technical and vocational secondary school education. The education process includes both lessons and numerous other activities. Here, the activities that took place on the interdisciplinary day were compared; these activities included various ecology-themed workshops and were carried out following the hybrid model, in part at school and in part remotely. In all cases it was found that the learning objectives can be achieved remotely as well, even if they require changing the approach and the method of work. The students are able to adapt quickly to the situations at hand which means that good cooperation between the teachers and the students is key to their collective success.

KEYWORDS: distance learning, SARS-CoV-2, ICT, ecology contents.

UPORABA ODPADNEGA MATERIALA PRI OPISMENJEVANJU

POVZETEK

Otroci se učijo skozi igro, preko gibanja in senzornih informacij, ki jih dobijo iz okolja. Prek čutov pridobivamo informacije o dogajanju v in okoli nas. 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. V prvem razredu začnejo učenci sistematično razvijati predopismenjevalne zmožnosti. Razvijajo vidno razločevanje, slušno razločevanje in razčlenjevanje, orientacijo na telesu, v prostoru in na podlagi, grafomotoriko, osnove pisanja in branja. V prispevku bodo predstavljeni učni pripomočki za razvijanje predopismenjevalnih zmožnosti, ki so narejeni iz odpadnega materiala. Z metodo opazovanja in razgovorom z učenci so se izdelani učni pripomočki izkazali kot dobro sredstvo za obogatitev pouka. Učni pripomočki iz odpadnega materiala so bili učencem zanimivi in jim omogočajo pridobivanje različnih senzornih izkušenj, s katerimi razvijajo čutne sisteme. Delo po postajah je učencem omogočalo, da pridejo v kratkem času v stik z več materiali in urijo različne spretnosti. Tako učenje jih dodatno motivira in tako tudi zahtevnejše naloge bolje opravijo, hkrati pa poskrbimo za dobro vzdušje v razredu, krepimo gibalne sposobnosti in njihovo samopodobo. 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, opismenjevanje, ponovna uporaba.

USE OF WASTE MATERIAL IN LITERACY

ABSTRACT

Children learn through play, movement, and sensory information they get from the environment. Through our senses, we get information about what is happening in and around us. All this information needs to be organized, classified, channeled, or labelled as (ir)relevant by the brain. If a child processes sensory information successfully, he or she forms a good foundation for motor, cognitive, social, and emotional development. In the first grade, pupils begin to systematically develop pre-descriptive abilities. They develop visual discrimination, auditory discrimination and parsing, orientation on the body, in space and on the paper, graphomotor skills, the basics of writing and reading. This paper will present teaching aids for the development of pre-literacy skills made from waste materials. Through observation and interviews with pupils, the teaching aids proved to be a good tool for enriching the learning process. The teaching aids made of waste materials were interesting for the pupils and allowed them to have different sensory experiences to develop their sensory systems. The workstations allowed the pupils to come into contact with several materials in a short period of time and to practice different skills. This way of learning motivates them further and they do better even with more challenging tasks, while at the same time creating a good atmosphere in the classroom, strengthening their motor skills and their self-esteem. Waste materials are easily available, familiar and provide a variety of products, so teachers have many options to use them in the classroom.

KEYWORDS: primary school, movement, movement activities, epidemic.

RECIKLIRAN KRUH

POVZETEK

Kruh je eno pogostejših živil, ki ga poznamo ljudje. Je neposredna oznaka za razmerje med lakoto in izobiljem in ljudje bi morali imeti do kruha spoštljiv odnos. V Evropi gospodinjstva zavržejo približno $\frac{1}{4}$ vse hrane, ki jo kupijo. Kruh je hitro pokvarljivo živilo, potrošniki pa ga imamo radi svežega. Zaradi tega veliko kruha zavržemo. Kruh ni najboljši odpadek za naravo in izdelavo komposta, saj vsebuje veliko soli, prav tako pa vsebuje veliko večji ogljični odtis, tehnološka in distribucijska pot pa sta bistveno daljši, v primerjavi z običajno krmo. V članku sem predstavil način, kako lahko kruh recikliramo. Opisal sem simboliko in zgodovino kruha, postopek in recepturo za izdelavo recikliranega kruha, predstavil hranilne vrednosti recikliranega kruha ter njegov ogljični odtis. Recikliran kruh ima višjo biološko vrednost kot kruh, ki ga poznamo danes, saj ima dodane dodatne beljakovine. Prav tako pa ima tudi bistveno nižji ogljični odtis kot kruh, ki je v celoti narejen iz moke. Če pa nam ostane tudi kaj recikliranega kruha, tega ni potrebno zavreči, ampak ga lahko uporabimo v različnih jedeh (kruhovi cmoki, kruhova juha, polnila pri pečenih puranih in gosih idr.). Z recikliranim kruhom skrbimo za zmanjševanje odpadkov, zmanjšujemo ogljični odtis in povečujemo biološko vrednost kruha, ki ga zaužijemo.

KLJUČNE BESEDE: recikliranje, ogljični odtis, kruh, biološka vrednost živil.

RECYCLED BREAD

ABSTRACT

Bread is one of the most common foods we humans know. It is a direct label for the relationship between hunger and abundance and people should have a respectful attitude towards bread. In Europe, households throw away about $\frac{1}{4}$ all the food they buy. Bread is a perishable food, and consumers love it fresh. This throws away a lot of bread. Bread is not the best waste for nature and compost production, as it contains a lot of salt, it also contains a much larger carbon footprint, and the technological and distribution path is significantly longer compared to conventional feed. In the article, I presented a way we can recycle bread. I described the symbolism and history of bread, the process and recipe for making recycled bread, presented the nutritional value of recycled bread and its carbon footprint. Recycled bread has a higher biological value than the bread we know today, as it has added extra protein. It also has a significantly lower carbon footprint than bread made entirely from flour. However, if we are left with some recycled bread, it is not necessary to throw it away, but we can use it in various dishes (bread dumplings, bread soup, fillings for roasted turkeys and geese, etc.). With recycled bread, we take care of reducing waste, reducing the carbon footprint and increasing the biological value of the bread we eat.

KEYWORDS: recycling, carbon footprint, bread, biological value of food.

Z VKLJUČEVANJEM V PROJEKTE SPODBUJAMO EKOLOŠKO MISELNOST OTROK

POVZETEK

Pred nekaj leti so po spletu zaokrožile fotografije z dopisom, ki so se me zelo dotaknile. Verjetno se jih boste spomnili tudi drugi: na njih so bili otroci tretjega sveta, ki dobesedno živijo na kupih smeti, ribe in druge morske živali, ki se dušijo med plavajočo plastiko, umazane struge rek ... Prejeto sporočilo sem delila naprej med svoje zaposlene ter jih nagovorila, da vsi skupaj spodbudimo otroke k zmanjšanju odpadkov. Samo deljenje sporočila z nagovorom se mi je zdelo premalo, zato sem ekološkim problemom namenila del ene izmed pedagoških konferenc. Ugotovili smo, da smo kot šola vključeni v številne projekte, vendar jih premalo povezujemo med seboj. Otroke bo potrebno spodbujati ter jih motivirati tudi z lastnim zgledom. Nadalje smo ugotovili, da so posamezni oddelki že zelo aktivni, da pa v dejavnosti želimo vključiti večje število otrok. Že v sklopu učnega programa je ekološkim temam namenjen velik del časa, dodana vrednost in spodbuda so tiste aktivnosti, ki v šoli potekajo kot spremljevalne dejavnosti. Učenci že vrsto let sodelujejo pri zbiralnih akcijah odpadnega papirja. Korak naprej smo naredili pri zbiralnih akcijah odpadnega jedilnega olja, kjer smo se povezali s slovenskim humanitarnim društvom. Z donacijo zbranega odpadnega jedilnega olja pomagamo društvu, ki predela organske odpadke v uporabne predmete in hkrati preprečujemo onesnaževanje narave z nekontroliranim zlivanjem odpadnega olja med komunalne odpadne vode. Sodelovanje v projektih ENO TREE PLANTING, Stara igrača za dober namen, Plastika v okolju in umetnosti v okviru DOBRIH VESTI so le delček aktivnosti, ki na šoli potekajo in katerih namen in cilje bi vam želela predstaviti v nadaljevanju prispevka. Skozi vključevanje v omenjene aktivnosti želimo pri učencih doseči zavedanje, da varovanje okolja ni samo interes in naloga raziskovalcev, temveč vseh prebivalcev našega planeta.

KLJUČNE BESEDE: povezovanje, aktivna vključenost, ozaveščanje, sajenje dreves, plastika v okolju in umetnosti.

PARTICIPATION IN PROJECTS PROMOTES THE ECOLOGICAL MENTALITY OF CHILDREN

ABSTRACT

A few years ago, photos with a message circulated on online channels, an event which touched me very much. You can probably remember a few of them as well: there were children from Third World countries living on piles of garbage; fish and other sea animals suffocating among the floating plastic; dirty riverbeds... I shared the message I received with my employees and encouraged them to motivate children to reduce waste. Just sharing a message with an address seemed insufficient to me, therefore I devoted part of one pedagogical conference to ecological issues. We found that as a school we are involved in many projects, but we do not connect them enough. Children will need to be encouraged and motivated by our own example. Furthermore, we found that individual departments are already very active, but we want to include more children in those activities. There are already some activities that are part of the curriculum; a large portion of time is devoted to ecological topics; added value and encouragement are activities which take place at our school as accompanying activities. Pupils have been participating in waste paper collection campaigns for many years. Our school connected with the Slovenian Humanitarian Society and took a step forward in the collection of waste cooking oil. By donating the collected waste cooking oil we help the company, which processes organic waste into useful objects. We are simultaneously preventing the pollution of nature by uncontrolled dumping of waste oil into municipal wastewater. Participation in the projects *Eno Tree Planting*, *Old toy for good intentions*, *Plastics in the environment and art in the framework of GOOD NEWS* are just some of the activities that take place at our school. I would like to present the purpose

and goals of these activities in the continuation of this article. By engaging in these activities, we want to make students aware that environmental protection is not only in the interest of researchers, but all inhabitants of our planet.

KEYWORDS: integration, active participation, awareness rising, planting trees, plastics in the environment and art.

UPORABA NAVADNE LAKOTE ZA BARVANJE OVČJE VOLNE TER RAČUNALNIŠKO VREDNOTENJE REZULTATOV

POVZETEK

V raziskavi je preučena možnost uporabe rastlinskih barvil za barvanje volne, namenjene izdelavi unikatnih pletenih in vezanih izdelkov. V ta namen je bila izvedena ekstrakcija barvil iz svežih korenin navadne lakote. Pri procesu ekstrakcije in/ali barvanja so bile v različnih fazah postopka, pri različnih pogojih (pH) in v različnih koncentracijah uporabljeni Al- kovinska sol, jabolčni kis ali soda bikarbona, ki omogočajo doseganje pestrejše palete barv in fiksiranje barvil. Po barvanju so bili vzorci oprani, opravljen pa je bil preizkus barvne obstojnosti proti gospodinjškemu in poklicnemu pranju. Barvna paleta volne, ki jo dosežemo pri barvanju z naravnimi barvili, je tudi barvnometrično ovrednotena po CIELAB-sistemu in grafično prikazana kot paleta toplih barv, ki jih omogoča uporaba različnih rastlinskih delov ob prisotnosti kovinskih soli. Obarvanja volne s svežimi koreninami navadne lakote nam dajejo različne rdeče odtenke.

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

USE OF HEDGE BEDSTRAW FOR DYEING SHEEP WOOL AND COMPUTER EVALUATION OF RESULTS

ABSTRACT

This study investigated the possibility of using plant dyes to dyeing wool for the production of unique knitted and embroidered products. In order to achieve this, extraction of dyes from fresh roots of the hedge bedstraw was performed. In the extraction and/or dyeing process, Al-metallic salt, apple cider vinegar or baking soda were used at different stages of the process, at different conditions (pH) and in different concentrations to achieve larger variety of the colour palette as well as an enhanced fixation of dyes to the fibres. After dyeing, the samples were washed and tested for colour fastness against household and professional washing. A colour palette, which was achieved by using natural dyes, was evaluated using colour metrics CIELAB system and presented graphically as a palette of warm colours, derived from the use of different plant parts in presence of metallic salts. The dyeing of wool with fresh roots of the hedge bedstraw gives us different shades of red.

KEYWORDS: wool, plant dyes, wool dyeing, wool washing, colour metrics.

EKOLOŠKO OZADJE MATEMATIČNIH NALOG

POVZETEK

Osnovnošolsko matematiko – poleg spoznavanja uporabnosti v vsakdanjem življenju, učenja ustvarjalnosti in natančnosti ter ne nazadnje tudi razvoja uporabe različnih postopkov – dojemam tudi kot podporo drugim bodisi naravoslovnim bodisi družboslovnim znanostim. Glavna ideja projekta, ki je v prispevku opisan, je pri pouku matematike v določenem obdobju, poleg usvajanja učnih ciljev, ki jih narekuje učni načrt, organizirano posredno implementirati povezave z enim izmed drugih osnovnošolskih predmetov ali z določeno temo. Tako sem v zadnjem projektu, ki sem ga poimenoval *Ekološko ozadje matematičnih nalog*, v aktivnosti vsake teme implementiral ekološke vsebine. Cilje učne priprave sem razdelil na primarne, ki so sicer določeni z učnim načrtom jaz pa sem jih razširil, in sekundarne (posredne) cilje, ki sem jih zastavil v okviru načrtovanega projekta. Usvajanje ciljev sem dosegel s pomočjo avtorskih »ekološko-matematičnih« nalog, ki sem jih v prispevku podrobneje predstavil. Ob koncu obravnave posamezne učne enote sem pri preverjanju znanja preveril poznavanje in razumevanje tako primarnih kot tudi sekundarnih ciljev. Rezultati evalvacije projekta so upravičili svoj namen, dodatno delo, čas in vložen trud, saj so učenci poleg znanja, ki se neposredno nanaša na matematiko, posredno usvojili znanje o aktualnih in uporabnih ekoloških vsebinah z več področij ter krepili zmožnost povezovanja vsebin z različnih področij, kar je nepogrešljiva kompetenca vsakega posameznika v današnjem času. Rezultati so pokazali, da so nekateri učenci sekundarne cilje usvojili celo bolje kot primarne. V projekt je bilo vključenih vseh 52 učencev od 6. do 9. razreda, ki jih poučujem.

KLJUČNE BESEDE: matematika, ekologija, medpredmetno povezovanje, posredno usvajanje učnih ciljev.

ECOLOGICAL BACKGROUND OF MATHEMATICAL PROBLEMS

ABSTRACT

In addition to learning about usefulness in everyday life, learning creativity and precision, and last but not least, developing the use of various procedures, I also perceive elementary mathematics as support for other sciences, whether natural or social sciences. The main idea of the project, described in the paper, is to indirectly implement mathematical connections with some other school subject. Thus, in the last project, which I named the *Ecological Background of Mathematical Problems*, I implemented ecological contents in the activities of each topic. I divided the learning goals into primary ones, which are determined by the curriculum and extended by me, and secondary (indirect) ones, which I set within the planned project. At the end of the discussion of each learning unit, I checked the knowledge and understanding of both, primary and secondary, goals. The results of the project evaluation justified their purpose, additional work, time and effort, as students, in addition to knowledge directly related to mathematics, indirectly acquired knowledge of current and useful ecological content from several fields and strengthen the ability to connect content from different fields, which is an indispensable competence of every individual today. The results showed, that some students mastered secondary goals even better than primary ones. The project involved all 52 students from 6th to 9th grade that I teach.

KEYWORDS: mathematics, ecology, cross-curricular integration, indirect acquisition of learning objectives.

OBHODNA VADBA Z IMPROVIZIRANIMI ŠPORTNIMI PRIPOMOČKI IZ ODPADNE EMBALAŽE V POSEBNEM PROGRAMU VZGOJE IN IZOBRAŽEVANJA

POVZETEK

V prispevku predstavljam pedagoško uro pri predmetu gibanje in športna vzgoja v posebnem programu vzgoje in izobraževanja. Posebni program temelji na tem, da usposobi učence za samostojno življenje. Učenci z motnjami v duševnem razvoju potrebujejo delo na konkretnem materialu. Prav zato so improvizirani športni pripomočki odličen nadomestek za drage športne pripomočke, ki jih šole ne uspejo kupiti v zadostni količini za vse učence. V pouk sem vnesla različne improvizirane športne pripomočke iz odpadne embalaže, ki so zaradi enostavne izdelave dostopni vsakomur. Ti pripomočki so zelo zabavni in raznovrstnih izvedb, učencem so zanimivi in se jih ne naveličajo. Obhodna vadba, ki sem jo uporabila na pedagoški uri pa učencem določi točno časovnico, koliko časa določeno vajo izvajajo, kar je učencem v veliko pomoč, predvsem zaradi njihovih različnih sposobnosti. Namen in cilj takšnega dela je, da učenci gradijo spoštljiv odnos do odpadkov in do ponovne uporabe le teh, hkrati pa z gibanjem med poukom skrbijo za zdrav življenjski slog. Učenci spoznajo in razumejo pomen recikliranja in ponovne uporabe odpadkov. Nekateri improvizirane športne pripomočki smo olepšali in jih preoblikovali za lažjo uporabo, nekateri pa predelave niso potrebovali. Učencem je delo z improviziranimi športnimi pripomočki zelo blizu, saj večkrat prinesejo v šolo svoje improvizirane športne pripomočke.

KLJUČNE BESEDE: improvizirani pripomočki, odpadki, gibanje, posebni program.

CIRCULAR EXERCISE WITH IMPROVISED SPORTS ACCESSORIES FROM WASTE PACKAGING IN A SPECIAL PROGRAM OF EDUCATION

ABSTRACT

In this article, I present a lesson in the subject of movement and physical education, in a special program of education. The special program is based on enabling students to live independently. Students with mental disabilities need to work on solid material. That is why improvised sports equipment is a great substitute for expensive sports equipment, which schools cannot afford to buy in sufficient quantities. I introduced various improvised sports aids made from packaging, which are accessible to everyone due to their simple construction. These gadgets are in varied designs and are very fun to use, interesting to students, who do not get bored of them. The exercise I used in the pedagogical lesson determines the exact timeline for the students. Depending on how long they perform a certain exercise, which is of great help to the students, because of their different abilities. The purpose and goal of such work is for students to build a respectful attitude towards waste and its reuse, while at the same time taking care of a healthy lifestyle by moving during lessons. Students learn and understand the importance of recycling and reusing waste. We have embellished and redesigned some of the makeshift sports accessories to make them easier to use. Some, however, did not need conversion. Students like to work with improvised sports equipment, as they often bring their own improvised sports equipment to school.

KEYWORDS: improvised aids, waste, movement, a special program.

MATEMATIKA IN OZAVEŠČANJE UČENCEV O VARČEVANJU S PITNO VODO

POVZETEK

Navade, ki jih pridobimo v mladosti, ostanejo tudi v zrelih letih, zato imamo starši in učitelji še poseben vpliv na oblikovanje navad mladega človeka. V okviru medpredmetnega povezovanja smo matematično znanje izračuna prostornine geometrijskih teles v 9. razredu povezali z ozaveščanjem učencev o okoljski problematiki. Pogovarjali smo se o pitni vodi. Učenci vedo, da brez vode ni življenja, da je pitna voda iz dneva v dan bolj dragocena in da pomanjkanje pitne vode ogroža že četrtno svetovnega prebivalstva. Z učenci smo ugotavljali, kakšne so naše navade pri uporabi pitne vode in raziskovali, kako vse lahko varčujemo s pitno vodo v gospodinjstvu. Ideje smo podprli s konkretnimi izračuni. Izračunali smo: koliko vode prihranimo, če se tuširamo in ne napolnimo cele kopalne kadi z vodo; koliko prihranimo, če skrajšamo čas tuširanja; koliko vode steče, če nam puščajo kotlički za izplakovanje WC-ja; koliko vode v določenem času steče pri odprti vodni pipi. Raziskali smo tudi, koliko prihranka to prinaša v denarju. Na spletu smo poiskali možnosti zbiranja in uporabe deževnice v hiši in zunaj. Z lastnim zgledom in s ciljno usmerjenim poukom smo učence ozavestili o možnostih varčevanja s pitno vodo. Sklenili so, da se bodo še bolj potrudili in tako prispevali svoj minimalni delež pri reševanju svetovnega problema.

KLJUČNE BESEDE: matematika v vsakdanjem življenju, pitna voda, prostornina, svetovni problem, varčevanje.

MATHEMATICS AND RAISING STUDENTS' AWARENESS OF DRINKING WATER SAVINGS

ABSTRACT

Habits that we acquire in youth remain in adulthood, so parents and teachers have a special influence on the formation of habits of a young person. As part of interdisciplinary connections, we connected the mathematical knowledge of calculating the volume of geometric bodies in the 9th grade with raising students' awareness of environmental issues. We talked about drinking water. Pupils know that there is no life without water, that drinking water is becoming more valuable day by day and that a shortage of drinking water is already threatening a quarter of the world's population. We found out with our students what our drinking habits are and researched how we can all save drinking water in the household. We supported the ideas with concrete calculations. We calculated: how much water we save if we take a shower and do not fill the whole bathtub with water; how much we save by shortening the shower time; how much water leaks if we are left with toilet cisterns; how much water flows in a given time at an open water tap. We also researched how much savings this brings in money. We looked online for ways to collect and use rainwater indoors and outdoors. Through our own example and goal-oriented lessons, we made students aware of the possibilities of saving drinking water. They decided to do even more and thus contribute their minimum share in solving the world problem.

KEYWORDS: Mathematics in Everyday Life, drinking water, saving, volume, world problem.

EKO BRALNA ZNAČKA KOT EKOLOŠKI VIDIK TRAJNOSTNEGA RAZVOJA V SEDANJI DRUŽBI

POVZETEK

Vzgoja in izobraževanje za varovanje narave ni več stvar posameznika je globalna težnja in odgovornost slehernega izmed nas. Odgovornosti svoje vloge se zavedamo tudi knjižničarji, ki s svojim pristopom in izborom ustreznih knjig, vstopamo v sfero otrokovega doživetja sveta in smo ena izmed pomembnih stopenj, na katerih učenec gradi svoj odnos do okolja. V knjižnici OŠ Janka Padežnika Maribor smo oblikovali seznam slikanic in mladinskega leposlovja, ki s svojo tematiko obravnava ekologijo, varovanje rastlinskega in živalskega sveta, odnose med živalmi in tudi med ljudmi. Ozaveščenosti za življenje v strpni družbi smo se lotili celostno. Cilj je bil spodbuditi učence k branju in razmišljanju o ekoloških vrednotah, človekovem pozitivnem in negativnem vplivu na okolje ter o kvaliteti medsebojnih odnosov. Zgodbe obravnavajo temo odnosa človeka do živali, naravnih bogastev (vode, zraka, gozdov, rek...), ločevanja odpadkov, recikliranja, pravičnega odnosa med osebami, laž, krivico, strpnost, enakovrednost, sobivanje... Učenci predstavijo prebrano knjigo ali pripravijo plakat na eko temo, ki ga razstavimo v posebnem eko kotičku naše šole. Takšni prispevki so motivacija za ostale učence, saj na podlagi beleženja števila učencev po posameznih oddelkih, ki se odločijo za vključitev v eko bralno značko, to število narašča iz leta v leto. Zadnji dve šolski leti opazujemo še, koliko učencev se na podlagi opravljene eko bralne značke vključuje v proces raziskovanja ekoloških tem pri programu Mladi za napredek Maribora, kar bo tema raziskovalne naloge v prihodnjem šolskem letu.

KLJUČNE BESEDE: eko bralna značka, ekologija, vzgoja, trajnostni razvoj, vrednote.

ECO READING BADGE AS ECOLOGICAL ASPECT OF SUSTAINABLE DEVELOPMENT IN CURRENT SOCIETY

ABSTRACT

Education for nature protection is no longer a matter of the individual, it is a global aspiration and responsibility of each of us. Librarians are also aware of the responsibility of their role, and with their approach and selection of the appropriate book we enter the sphere of children's perception of the world and are one of the important stages at which the student builds his relationship with the environment. In the library of the Janko Padežnik Primary School in Maribor, we have created a list of picture books and youth literature, which deals with ecology, protection of flora and fauna, relationships between animals and also between people. The awareness of living in a tolerant society was tackled holistically. The aim was to encourage students to read and think about ecological values, human positive and negative impact on the environment and the quality of interpersonal relationships. The stories deal with the human attitude towards animals, natural resources (water, air, forests, rivers...), waste separation, recycling, fair treatment among people, lies, injustice, tolerance, equality, coexistence... Pupils present a book that they have read or prepare a poster on an eco topic that we exhibit in a special eco corner of our school. Such contributions are a motivation for other students. Based on our recorded data, the number of students in each department who decide to participate in the eco-reading badge, is growing each year. In the last two school years, we have been observing the numbers of students that are involved in the process of researching ecological topics in the Youth for the Progress of the city Maribor programme on the basis of the eco-reading badge. This will be the topic of a research project in the next school year.

KEYWORDS: eco-reading badge, ecology, education, sustainable development, values,

KAKO SO DRUGOŠOLCI PREŽIVLJALI ČAS V NARAVI IN RAZVIJALI ČUT ZA OKOLJE

POVZETEK

Izvajanje razširjenega programa podaljšanega bivanja predstavlja za učitelje možnost, da lahko z učenci preživimo tudi čas v naravi. Danes, ko je utrip življenja zelo hiter in ko ljudje večino časa preživimo v zaprtih prostorih, je zelo pomembno, da otrokom nudimo čim več priložnosti, da doživijo stik z naravo, da jo vzljubijo in razvijejo skrben in odgovoren čut do nje. V članku smo predstavili dejavnosti, ki smo jih izvajali z učenci drugega razreda. V okviru dejavnosti podaljšanega bivanja, ki je namenjena usmerjenemu prostemu času, smo z učenci ta čas, dvakrat tedensko, aktivno preživeli v naravi. Uredili in skrbeli smo za šolski vrt, urejali okolico šole, preživljali čas v gozdu ali raziskovali travnik. Naloge so bile raznolike. Učenci so skozi lastno aktivnost pridobivali nova znanja; naučili so se posejati semena vrtnin, opazovati njihovo rast in skrbeti zanje, z lupo so raziskovali življenje živali na travniku in prisluhnili gozdu. Obenem pa so ozaveščali pomen odgovornega ravnanja v naravi, razvijali kompetence sodelovalnega učenja in socialne spretnosti. Preživete ure z učenci v naravi so že ob polletju izkazale kot dobra odločitev, učenci so svoja doživetja in vedenje o tem, kako je potrebno spoštovati naravo, v popoldanskem času z veliko vnemo predajali svojim staršem in jih spodbujali za obisk narave. S prispevkom želimo predstaviti primer dobre prakse, ki dokazuje, da je mogoče tudi v popoldanskem času pripraviti dejavnosti za učence, ki jih spodbujajo, da postanejo razmišljajoči in odgovorni v svojem ravnanju do narave.

KLJUČNE BESEDE: učenec, odnos, šolski vrt, travnik, gozd, lastna aktivnost, odgovornost.

HOW SECOND GRADE STUDENTS SPENT TIME IN NATURE AND DEVELOPED A SENSE OF THE ENVIRONMENT

ABSTRACT

Implementing an extended stay program is an opportunity for teachers to spend time with students in nature. Nowadays, when the tempo of life is very fast and when people spend most of their time indoors, it is very important to give children as many opportunities as possible to experience contact with nature, to love it and develop a caring and responsible sense of it. In the article, we present the activities we have carried out with second grade students. As part of the extended stay activity, which is intended for oriented free time, we spent this time with the students in nature twice a week. We arranged and took care of the school garden, arranged the surroundings of the school, spent time in the woods or explored the meadow. The tasks were varied. Pupils acquired new knowledge through their own activity; they learned to sow the seeds of vegetables, observe their growth and take care for them. Moreover, with a magnifying glass they explored the life of animals in the meadow and listened to the forest. At the same time, they raised awareness of the importance of responsible behavior in nature, developed competencies of collaborative learning and social skills. Spending lessons with students in nature proved to be a good decision already at the end of the first term, the students passed on their experiences and knowledge of how to respect nature in the afternoon with great enthusiasm to their parents and encouraged them to visit nature. With this article we want to present an example of good practice, which proves that it is possible to prepare activities for students in the afternoon, which encourage them to become thoughtful and responsible in their behavior towards nature.

KEYWORDS: student, relationship, school garden, meadow, forest, one's own activity, responsibility.

MIKROPROPAGACIJA VRTNICE ALI VENERINE MUHOLOVKE KOT LABORATORIJSKA VAJA

POVZETEK

Mikropropagacija rastlin je metoda hitrega vegetativnega razmnoževanja rastlin, pri čemer se zeleno rastlino razreže, nacepi na hranilno podlago in v primernih pogojih razrase. Izplen je lahko več deset rastlin, ki so genetsko enake izvorni (imajo enake barve in oblike cvetov, plodov), v nekaj tednih. To tehniko se široko uporablja v hortikulturi, z nekaj truda pa se jo lahko izvede tudi v okviru bioloških laboratorijskih vaj, kar zagotovo popestri učni proces. Vajo se lahko izvede z vrtnico ali venerino muholovko v treh različicah: i) na nivoju resnične prakse, ki daje najboljše in najhitrejše rezultate vendar zahteva posebno in drago opremo; ii) na prilagojen način, kjer se rastlinice še goji v gojišču, za sterilizacijo pa se poskrbi s postopki, ki so izvedljivi v domači kuhinji (in šoli) z nižjimi stroški vendar je večja nevarnost okužbe in propada rastlinic; iii) s podobno, a enostavnejšo in cenejšo tehniko potaknjencev, ki pa je občutno daljša. Vzgoja rastlinic lahko služi kot praktična izkušnja, ki je dobrodošel del učenja na vseh nivojih, pomaga pri razumevanju tematike in vloge te metode za človeštvo in naravo, vzpostavljanju odnosa do narave, predvsem rastlin in ponudi morebitni produkt, ki ga šola lahko uporabi na šolskih dogodkih, ko se zbirajo finančna sredstva za šolski sklad ali podoben namen.

KLJUČNE BESEDE: mikropropagacija, laboratorijske vaje, vrtnica, venerina muholovka.

MICROPROPAGATION OF ROSE OR VENUS FLY TRAP IN LABORATORY CLASS

ABSTRACT

Micropropagation of plants is a method of fast vegetative plant multiplication where a chosen plant is cut in smaller pieces, inoculated in a growth medium and regrown. The result can be several dozen plants that are genetically identical to the mother plant (have the same type and colour of petals, fruit) in a matter of weeks. This method is being widely used in horticulture industry but can also be done in a school laboratory class, which will definitely enrich student's learning experience. The experiment can be done with a rose or venus fly trap in three different modes: i) the way it's being done in the industry, giving the best and fastest results but requires special and expensive equipment; ii) a modified way that still involves growing the plants in a growth medium while the sterilization is achieved with tools that are available in every household (and school) which lowers the cost of the experiment but increases the possibility of contamination and withering of plants; iii) with a similar and cheaper but time-wise expensive method of cuttings. Growing of plants can serve as a practical, first-hand experience that is welcome in every level of learning, helps to understand the importance of this method's role for humanity and nature, establishing positive relationship with nature, especially plants and offers a possible product that a school can use at school's charity events.

KEYWORDS: micropropagation, laboratory class, rose, venus fly trap.

RAZVIJANJE ČUTA DO OKOLJA V PRVEM RAZREDU

POVZETEK

Naša šola stoji na podeželju. Tako smo v nenehnem in neposrednem stiku z naravo, ki v vsakem letnem času ponuja priložnosti za vseživljenjsko učenje, raziskovanje, ustvarjalnost in igro. S ciljem ohranjanja čistega okolja smo oblikovali aktivnosti, da se bodo učenci čimbolj zavedali, kako pomembno je ohraniti čisto in neokrnjeno naravo. V prvem razredu aktivnosti z ekološko tematiko v največji meri medpredmetno prepletamo z namenom, da učenci lažje ozavestijo pomen trajnostnega razvoja. V članku predstavljam dejavnosti in ideje, kako učence aktivno vključiti, da spoznajo svojo eko vlogo. Brali smo zgodbe z ekološke vsebino, spoznavali in nabirali so zelišča, reciklirali odpadno embalažo in jo nato uporabili pri izdelavi zelenjavnih gredic, športnih rekvizitov, glasbil in likovnih izdelkov. S sejanjem zelenjave v razrednem vrtu in kuhanjem domače porove juhe smo ozavestili pomen samooskrbe s hrano. Sprehod na bližnji travnik in v gozd, nabiranje gozdnih plodov in opazovanja narave je učence obogatilo z izkušnjami, da je lahko narava njihova učiteljica. Naravni material so uporabili kot pripomoček pri utrjevanju računskih operacij in razumevanju stolpčnih in vrstičnih prikazov. Vloga učitelja pri razvijanju čuta do narave je zelo pomembna, saj lahko s svojim zgledom in zanimivimi nalogami otroka na prijazen način vpelje v zavedanje pomena ohranjanja čistega okolja. Učenci so z domiselnimi idejami, kreativnostjo in ustvarjalnostjo z zanimanjem sodelovali in na preprost način razvili čuteč odnos do okolja.

KLJUČNE BESEDE: ekologija, okoljska ozaveščenost, narava, odpadna embalaža, naravni materiali.

DEVELOPING A SENSE OF THE ENVIRONMENT IN FIRST GRADE

ABSTRACT

Our school is located in the countryside. Thus, we are in constant and direct contact with nature, which offers opportunities for lifelong learning, exploration, creativity and play at any time of the year. With the aim of maintaining a clean environment, we have designed activities to make students as aware as possible of the importance of maintaining a clean and unspoiled nature. In year one (Elementary school), activities with ecological themes are mostly interdisciplinary in order to make it easier for students to become aware of the importance of sustainable development. In this article, I present activities and ideas on how to actively involve students in learning about their eco-role. We read stories with organic content, learned about and collected herbs, we recycled packaging waste and then used it to make vegetable beds, sports equipment, musical instruments and art products. By planting vegetables in the classroom garden and cooking homemade leek soup, we became aware of the importance of self-sufficiency in food. Walking to a nearby meadow and into the woods, picking forest fruits and observing nature enriched the students with the experience that nature can be their teacher. Natural material was used as an aid in consolidating arithmetic operations and understanding column and row representations. The role of the teacher in developing a sense of nature is very important, because with the teacher's example and interesting tasks he or she can introduce the child to the awareness of the importance of maintaining a clean environment in a friendly way. Pupils were highly interested in activities. They collaborated with imaginative ideas and creativity and developed a sensitive attitude towards the environment in a simple way.

KEYWORDS: ecology, environmental awareness, nature, packaging waste, natural materials.

PROJEKT POTUJEMO PO SVETU Z EKOLOŠKIMI VSEBINAMI

POVZETEK

Projektno delo je ena izmed strategij vzgojno-izobraževalnega dela, ki pri otroku razvija tako individualnost, spodbuja njegovo ustvarjalnost kot tudi medsebojno sodelovanje. Samo zavedanje, da svet, v katerem živimo sedaj, puščamo svojim otrokom, nas vodi v razmišljanje o tem, v kakšnem stanju bo ta svet v prihodnje. Pomembno je, da z ekološkim ozaveščanjem in vzgojo pričnemo dovolj zgodaj, da bodo otroci cenili in spoštovali tisto, kar je dragoceno nam in kar bomo s pravilnimi vzgojnimi pristopi in vzgledi prenesli nanje. Predstavljam celoletni razredni projekt Potujemo po svetu, ki je bil ves čas prepleten z ekološkimi vsebinami. Z učenci 3. razreda smo spoznavali naš čudovit planet Zemljo, ob tem pa ustvarjali zanimive izdelke iz odpadnih materialov in z njimi predstavili značilnosti posameznih kontinentov. Učenci so bili vključeni v vse etape projektnega dela in si pridobili pomembno spoznanje, kako uporabna je lahko odpadna embalaža, in da lahko prav vsak prispeva delček k varovanju okolja. Vodstvo šole je ves čas podpiralo izvedbo projekta in njene aktivnosti, otroci pa so v projektu z navdušenjem sodelovali. Pridobljeno znanje in veščine samega projekta so bili razširjeni na vse razrede in učitelje na šoli, ki so spoznanja zelo dobro prenesli v svoje delo.

KLJUČNE BESEDE: projekt, odpadna embalaža, ponovna uporaba, izdelki, ekologija, planet.

PROJECT – WE ARE TRAVELING AROUND THE WORLD WITH ECOLOGICAL CONTENT

ABSTRACT

Project work is one of the strategies of educational work, which develops the child's individuality, encourages his creativity as well as cooperation. Just the awareness that we are leaving the world to our children leads us to think about the state of this world in the future. We must start with ecological awareness and education early enough for children to appreciate and respect what is valuable to us and what we will pass on to them through the right educational approaches and examples. I present a year-round class project "Traveling the World" which has always been intertwined with ecological themes. With my 3rd grade students, we got to know our beautiful planet Earth while creating interesting products from waste materials and presenting the characteristics of individual continents. Students were involved in all stages of the project work and gained important insight into how useful packaging waste can be, and that everyone can contribute a part to environmental protection. The school management always supported the project and its activities, and the children enthusiastically participated in the project. The acquired knowledge and skills of the project itself were spread to all classes and teachers at the school, who passed the findings very well into their work.

KEYWORDS: project, packaging waste, reuse, products, ecology, planet.

ŠOLSKI VRT NA ŠOLSKEM CENTRU ZA POŠTO, EKONOMIJO IN TELEKOMUNIKACIJE LJUBLJANA POD NOVIM MENTORSTVOM

POVZETEK

Šolski center za pošto, ekonomijo in telekomunikacije Ljubljana (ŠC PET) je v mrežo slovenskih ekošol vključen od šolskega leta 2013/14. Pod okrilje ekošole na ŠCPET spada tudi šolski vrt, ki sva ga s sodelavko prevzeli pred nekaj meseci od dolgoletnega mentorja. Naš vrt je del Fondovih vrtov, ki jih je sodišče januarja 2022 prisodilo naselju, kar pomeni, da na tem zemljišču zaenkrat ne bodo gradili poslovnih stavb. To je bil za obe mentorici odličen signal, da sva začeli še bolj intenzivno razmišljati o možnostih, ki jih ponuja šolski vrt. Ta je lahko v veliko pomoč pri doseganju izobraževalno-vzgojnih ciljev na okoljskem področju, na področju promoviranja zdravega načina življenja in zdravega prehranjevanja. V prispevku bom kratko opisala dejavnosti ekošole na ŠCPET, večji del prispevka pa bom namenila dejavnostim, povezanim s šolskim vrtom. To so tematske razredne ure, na katerih promoviramo ekološko pridelano zelenjavo, jagodičevje in dišavnice ter obiščemo šolski vrt. Naslednja aktivnost je promocija vzgoje mikrozelenjave med sodelavci in dijaki. Pri urah, povezanih z iskanjem podjetniških idej, bomo spodbujali dijake k razmislekom o registraciji dejavnosti, povezanih s šolskim vrtom, vertikalnimi gredami, domovanji za žuželke ipd. Šolski vrt tako postaja učni pripomoček.

KLJUČNE BESEDE: ekošola, šolski vrt, dijaki, tematska razredna ura, mikrozelenjava, učno podjetje, ekološko pridelana hrana.

NEW MENTORS OF THE SCHOOL GARDEN AT THE SCHOOL CENTRE FOR POSTAL SERVICES, ECONOMICS AND TELECOMMUNICATIONS IN LJUBLJANA

ABSTRACT

The School Centre for Postal Services, Economics and Telecommunications Ljubljana (ŠC PET) has been included in the list of Slovenian eco-schools since school year 2013/14. Among eco-school activities there is the school garden my colleague and I took over a few months ago from a longtime mentor. The garden is part of the Fond gardens that were attributed to the settlement by the court in January 2022. For the time being, no office buildings can be built on this property. This was a great sign for both mentors so we're starting to focus on the possibilities the school garden offers, for instance, reaching educational goals in the environmental field, promoting the healthy lifestyle and healthy eating. The following paper briefly describes the activities of the eco-school on ŠCPET, mainly the activities related to the school garden. These are theme class hours dedicated to promoting organic vegetables, berries and herbs and visiting the school garden. The next activity is to promote growing micro vegetables among colleagues and students. While coming up with entrepreneurial ideas in the class, students will be encouraged to consider coming to activities related to the school garden, vertical garden beds, insect homes, etc. The school garden is thus becoming a teaching tool.

KEYWORDS: eco-school, school garden, students, theme class hour, micro vegetables, learning enterprise, organic food.

VPLIV OGREVALNIH SISTEMOV NA OKOLJE SKOZI OČI DIJAKOV PROGRAMA INŠTALATER STROJNIH INŠTALACIJ

POVZETEK

Živimo v času, ko je vse bolj vidno, da moramo skrbeti tudi za naše okolje. Opažamo, da ima na okolje velik vpliv človek oz. njegov način življenja, ki stremi k temu, da bi živel vedno udobneje in lepše. To pa ima negativne posledice na naš planet. Ena izmed želja človeka je tudi ta, da želi živeti v toplem stanovanju oz. hiši. To pa doseže z različnimi vrstami ogrevalnih sistemov. Med njimi so seveda velike razlike pri vplivu na okolje. Vpliv na okolje je odvisen od starosti ogrevalnega sistema in vrste energenta, ki ga uporabljajo. Tako smo se z dijaki programa inštalater strojnih inštalacij, ki bodo v prihodnje izdelovali, montirali in servisirali tudi ogrevalne sisteme, lotili naloge, v okviru katere so primerjali starejši domači ogrevalni sistem z novejšim. Gre torej za dijake, pri katerih so doma v bližnji preteklosti posodobili ogrevalni sistem. Tisti dijaki, pri katerih pa doma uporabljajo kakšen starejši sistem ogrevanja, so morali ta sistem primerjati s poljubno izbranim novejšim sistemom, za katerega predvidevajo, da bi imel pozitivne učinke. Namen naloge je bil, da se dijaki začnejo zavedati, kakšen vpliv imajo ogrevalni sistemi na okolje in kateri so v danem trenutku boljši.

KLJUČNE BESEDE: ogrevalni sistemi, vpliv na okolje, dijaki, inštalater strojnih inštalacij.

THE IMPACT OF HEATING SYSTEMS ON THE ENVIRONMENT AS SEEN THROUGH THE EYES OF STUDENTS OF THE MECHANICAL INSTALLER PROGRAM

ABSTRACT

We live in a time when it is becoming increasingly evident that we also need to take care of our environment. We are becoming increasingly aware that the environment is greatly influenced by man or his way of life, where man strives to live more and more comfortably and luxuriously. This, in turn, has negative consequences for our planet. One of the desires of man is also the desire to live in a warm apartment or house. This can be achieved by using different types of heating systems. There are, of course, big differences between these in terms of environmental impact. The impact on the environment depends on the age of a heating system and the type of energy source used by each heating system. Thus, together with the students of the mechanical installer program, who will in the future manufacture, install and service heating systems, we undertook a task in which students compared an older traditional domestic heating system with a newer one. These were students whose heating system had been upgraded at home in the recent past. However, those students who use older heating systems at home had to compare these systems with any newer system of their choice, which they predicted would have positive effects. The purpose of the assignment was to make students aware of the impact of heating systems on the environment and to identify which ones are better at a given time.

KEYWORDS: heating systems, environmental impact, students, mechanical installer.

**OKOLJSKA VZGOJA PRI SLOVENŠČINI V SREDNJEM
STROKOVNEM IZOBRAŽEVANJU
(Z ROKO V ROKI S PROGRAMI EKOŠOLE)**

POVZETEK

Okoljska vzgoja se kot ena izmed integriranih ključnih kvalifikacij srednjega strokovnega izobraževanja udejanja pri pouku slovenščine na različne načine. V članku so predstavljene učne oblike in metode dela, s katerimi lahko zasledujemo cilje okoljske vzgoje pri slovenščini. Na primerih je prikazano, kako lahko dijaki usvojena znanja poglobljajo in krepijo svoje ustvarjalne sposobnosti tudi z vključevanjem v obšolske dejavnosti v okviru Ekošole. V zaključku so navedene ugotovitve lastne prakse, in sicer da lahko učitelj slovenščine permanentno skrbi za vključenost okoljskih in ekoloških vsebin ter njihovo aktualizacijo tako pri književnem kot pri jezikovnem pouku, hkrati pa kot mentor dijake motivira k vključevanju v dodatne projektne aktivnosti ter cilje okoljske vzgoje uresničuje tudi na interdisciplinarni ravni.

KLJUČNE BESEDE: slovenščina, okoljska vzgoja, integrirana ključna kvalifikacija, aktualizacija okoljskih vsebin, Ekošola.

**ENVIRONMENTAL EDUCATION INTEGRATED IN THE SUBJECT
SLOVENIAN LANGUAGE IN SECONDARY TECHNICAL COURSE
(HAND IN HAND WITH THE ECO-SCHOOL PROGRAMME)**

ABSTRACT

The environmental education is integrated as a key competence in several school subjects in upper secondary technical schools among them in the Slovenian language course. The paper presents various teaching methods and forms used by a teacher during the lessons of the Slovene language in order to address some environmental topics. The presented examples show how students can broaden and demonstrate their knowledge and express their creativity through the Eco-school assignments offered to them in a form of extra-curricular activities. The conclusion focuses on the role of a teacher of the Slovene language, who can permanently integrate environmental education in the subject. Nevertheless, the discussion of current environmental issues may be included in both, lessons on literature and the use of language. Furthermore, based on a personal experience, a teacher as a mentor can motivate students to participate in extra-curricular activities. As the objectives of the environmental education are achieved with the tools of cross-curricular collaboration interdisciplinary learning experience is promoted.

KEYWORDS: the Slovenian language, environmental education, integrating key competence, actualizing environmental topics, Eco-school.

RAZVIJANJE OZAVEŠČANJA O SKRBI ZA OKOLJE V ODDELKU PODALJŠANEGA BIVANJA

POVZETEK

Onesnaženost okolja je vedno večji problem, na katerega nas vse glasneje opozarjajo znanstveniki in okoljski aktivisti. Ker smo ljudje tisti, ki smo v veliki meri najbolj odgovorni za onesnaževanje okolja, ima šola pomembno vlogo pri ozaveščanju šolarjev o pomenu ohranjanja našega okolja in poučevanja le-teh o različnih načinih, kako lahko sami doprinesejo k skrbi za okolje. V prispevku bomo predstavili različne aktivnosti, s katerimi razvijamo čut za okolje pri naših učencih v okviru oddelka podaljšanega bivanja. Predstavili bomo različne socialne igre, s katerimi pri učencih razvijamo skrb za okolje in različne izdelke ter igre, ki smo jih izdelali s pomočjo odpadnih materialov. Spoznanja, predstavljena v prispevku, so lahko v pomoč učiteljem pri oblikovanju pedagoškega procesa, ki bo pozitivno vplival na večjo ozaveščenost učencev o pomenu lastne skrbi za okolje v njegovem vsakdanjem življenju.

KLJUČNE BESEDE: ekologija, oddelk podaljšanega bivanja, ozaveščanje, skrb za okolje.

DEVELOPING ENVIRONMENTAL AWARENESS IN AFTER SCHOOL CARE

ABSTRACT

Environmental pollution is a growing problem that scientists and environmental activists are increasingly warning us about. Because we humans are largely responsible for environmental pollution, the school plays an important role in making students aware of the importance of preserving our environment and teaching them about different ways in which they can contribute to caring for the environment. In this paper, we will present various activities that develop environment awareness in our students within the after school care. We will present various social games with which we develop students' care for the environment and various teaching aids and games that we made with the help of waste materials. The findings presented in this paper can help teachers to design a pedagogical process that will have a positive effect on raising students' awareness of the importance of their own care for the environment in their daily lives.

KEYWORDS: after school care, awareness, care for the environment, ecology.

S SODELOVANJEM PRI PROJEKTU TURIZMU POMAGA LASTNA GLAVA SPODBUJAMO POVEZOVANJE UČENCEV Z LOKALNIMI TURISTIČNIMI INSTITUCIJAMI IN VZGAJAMO MLADE TURISTE

POVZETEK

Na Osnovni šoli Antona Martina Slomška Vrhnika že vrsto let sodelujemo pri projektu Turizmu pomaga lastna glava Turistične zveze Slovenije. Z učenci raziskujemo turizem in njegove možnosti v domačem kraju ter s tem trajnostno prispevamo k njegovemu razvoju. Učence vzgajamo v skrbne osebe, ki jim je mar za ljudi in za svoje okolje. Po razpisu se z učenci naloge lotimo problemsko. Izberemo lokalno turistično posebnost in ob njej razvijamo novo zamisel, produkt, ki ustreza razpisu. Pri raziskovanju smo pozorni na vse, kar je že lokalno poznanega, na primer znane osebnosti, ponudba hrane okoliških kmetov, jedi, ki so tipične za naš kraj ... Letošnji naslov razpisa je Voda in zdravilni turizem. Z udeleženci smo se lotili raziskovanja vode in njenih zdravilnih učinkov. S pomočjo predsednice Turističnega društva Blagajana Vrhnika smo izbrali vodni izvir Lintvern nad Starim malnom, raziskovali o njem v različnih virih in pripravili aktivnosti v njegovi okolici, zaradi katerih bo zanimivejši in trajneje obiskan. Pripravili smo delavnice za otroke in njihove starše. Otroci poslušajo zgodbo o Lintvernu, rišejo zmaja – Lintverna, potočne rake ter okoliške rastline na rabljene plastenke ali steklenke in tekstil, sestavljajo kamnite stolpiče ob potoku. Starši se sprehodijo po čutni poti ob potoku, v kopališču opravijo potop v hladno vodo ali uživajo v sproščujočih zvokih narave ob zeliščnem čaju, ki se imenuje po zmaju Lintvernu. Učenci so kraj obiskali, raziskali, pripravili dva intervjuja in ponudbo aktivnega popoldneva v sproščujoči okolici Starega malna. Preobrazili so se v turistične uslužbenke, ki bodo idejo resnično izvedli po svojem promocijskem načrtu.

KLJUČNE BESEDE: narava, voda, Lintvern, turizem.

BY PARTICIPATING IN THE PROJECT »TURIZMU POMAGA LASTNA GLAVA« WE ENCOURAGE PUPILS TO CONNECT WITH LOCAL TOURIST INSTITUTIONS AND EDUCATE YOUNG TOURISTS

ABSTRACT

At Anton Martin Slomšek Elementary School in Vrhnika, we have been involved in the project "Turizmu pomaga lastna glava" of the Slovenian Tourist Board, for many years. We explore tourism and its opportunities in our hometown with pupils and we make a sustainable contribution to its development. We raise our pupils as persons, who care about other people and their environment. We use a problem approach to deal with our theme. We choose a local tourist specialty and try to create a new idea or a product that corresponds to the theme. During the research, we pay attention to everything that is already locally known, for example famous persons, the food supply of local farmers, our typical local dishes ... This year's theme is Water and health tourism. We undertook a research of water and its healing effects with the pupils. With some help of the president of the Tourist Association Blagajana Vrhnika, we chose the water spring named Lintvern in Star maln. We researched about Lintvern in various sources and prepared some activities nearby, so it will be even more interesting and visited in the future. We prepared some activities for children and their parents. Children listen to the legend of Lintvern (the dragon), draw a dragon, brook crabs and surrounding plants on used bottles or textiles, assemble brook pebbles. Parents can walk on the sensory path along the brook, dive in the pool with cold water or enjoy the relaxing sounds of nature, by drinking Lintvern herbal tea. Our pupils visited the place, explored it, prepared two interviews and offered an active afternoon in a relaxing surroundings of Star maln. They have transformed into tourist workers, who are about to implement the idea according to their promotional plan.

KEYWORDS: nature, water, Lintvern – dragon, tourism.

KAKO K OKOLJSKIM VSEBINAM PRITEGNEMO UČENCE Z AVTIZMOM

POVZETEK

Vzgoja otrok z avtizmom v okoljskem duhu in širjenju znanja o trajnostnem načinu življenja predstavlja za učitelja poseben izziv. Primanjkljaji, ki opredeljujejo življenje in delo otrok z avtizmom, imajo pri organizaciji pouka ključno vlogo. Težave imajo pri doseganju pozornosti, socialnih odnosov ter zaznavanju in izražanju občutkov. Osredotočajo se le ne posamezno značilnost, niso pa zmožni povezati posameznih delov v celoto. Vendar pa se lahko tega naučijo, če jim nekdo to pokaže, jih vodi in razloži. Zato smo pri poučevanju okoljskih vsebin v kombiniranem oddelku prvega in drugega razreda, na Centru za sluh in govor Maribor, v prilagojenem programu z enakovrednim izobrazbenim standardom za otroke z avtizmom, skrbno izbrali in načrtovali motivacijo s katero bi na otroku razumljiv način vzpodbudili ekološko ozaveščenost in mu hkrati pomagali, da se vključi v socialno okolje razreda. Njihovo znanje o recikliranju smo širili s konkretnimi izkušnjami z ločevanjem odpadkov, z zbiranjem starega papirja, s prebiranjem zgodbic z ekološko vsebino. Učenci so iz odpadnih materialov izdelali družabne igre s katerimi se lahko igrajo v družbi enega ali več soigralcev. Zavedanje o trajnostnem načinu življenja in varstva okolja so krepili v sodelovanju pri projektu Moder stol – nekdo misli nate in v Unescovem projektu: STARA igr(ač)a za novo veselje. Z aktivnim učenjem, s slikovitim gradivom in z ustvarjalno uporabo odpadnih materialov smo pri učencih želeli ozavestiti, da lahko tudi oni prispevajo k varovanju in ohranjanju okolja, z igro z vrstniki pa krepijo pomembne socialne veščine.

KLJUČNE BESEDE: avtizem, družabne igre, koncept brez odpadkov, recikliranje, varstvo okolja.

HOW TO ENGAGE STUDENTS WITH AUTISM IN ENVIRONMENTAL CONTENT

ABSTRACT

Raising children with autism in an environmental spirit and spreading knowledge about sustainable living represents a special challenge for teachers. Deficits that define the lives and work of children with autism play a key role in the organization of lessons. Children with autism have difficulty gaining attention, forming social relationships, and perceiving and expressing feelings. They focus not only on one individual feature, but they are also not able to connect individual parts into a whole. However, they can learn this if someone shows it to them, guides them and explains it. Therefore, when teaching environmental content in the combined section of the first and second grade, at the Center for Hearing and Speech Maribor, in an adapted program with an equivalent educational standard for children with autism, we carefully selected and planned motivation to promote ecological awareness and at the same time help them him to integrate into the social environment of the class. We expanded their knowledge of recycling through concrete experience in waste separation, by collecting old paper, by reading stories with organic content, etc. Students made board games from waste materials that can be played with one or more players. Awareness of sustainable living and environmental protection was strengthened by participating in the Blue Chair - Someone Thinks of You project and in the UNESCO project: Old toy(s) for new joy. Through active learning, pictorial material and the creative use of waste materials, we wanted to make students aware that they can also contribute to protecting and preserving the environment, and through play strengthen important social skills.

KEYWORDS: autism, board games, waste-free concept, recycling, environmental protection.

POGONSKA SREDSTVA PRIHODNOSTI V AVTOMOBILSKI INDUSTRIJI

POVZETEK

Iz tematskega področja ekologije kot del učnega načrta sem raziskovala idejno zasnovo vizije pogonskih goriv prevoznih sredstev iz strani bodočih strokovnjakov v avtomobilski industriji. Zanimalo me je ali prevladuje skupna vizija? Če da, katera? Dijaki, ki se izobražujejo za poklic Avtoservisni tehnik so z vodenim daljšim pisnim sestavkom in debato preučevali možnosti pogonskih sredstev v avtomobilih prihodnosti. Izsledke o viziji pogonskih goriv so argumentirali v zvezi z vplivom na onesnaževanje okolja, možnostjo tehnološkega razvoja, načinom pridobivanja, ekonomičnostjo, infrastrukturo in demografskimi spremembami. Prispevek je vpogled v možno tranzicijo iz neobnovljivih na obnovljive vire v avtomobilski industriji.

KLJUČNE BESEDE: avtomobilska industrija, avtoservisni tehnik, pogonska goriva, vizija, vpliv na okolje.

FUELS OF THE FUTURE IN THE AUTOMOTIVE INDUSTRY

ABSTRACT

In the thematic field of ecology, as part of the curriculum, I researched the concept of the vision of motor fuels by future experts in the automotive industry. I was wondering if a shared vision prevails? If so, which one? Students training for the profession of a Car Service Technician explored the possibilities for future fuels by guided written composition and a debate. The vision of motor fuels was debated about the impact on environmental pollution, the possibility of technological development, the method of extraction, economy, infrastructure, and demographic change. The paper provides an insight into the possible transition from non-renewable to renewable sources in the automotive industry.

KEYWORDS: automotive industry, a car service technician, fuels, vision, environmental impact.

OZAVEŠČANJE UČENCEV O POMENU IN VAROVANJU VODE V OKVIRU PROJEKTA ERASMUS+ WAT.EDU

POVZETEK

Prispevek predstavlja rezultate projekta Erasmus+ z naslovom Wat.Edu – Water Education for Innovative Environmental Learning. Cilj triletnega projekta, v katerega smo vključene štiri izobraževalne ustanove in štiri strokovne institucije iz Slovenije, Madžarske, Češke in Grčije, je razvoj učnega gradiva, ki pripomore k **ozaveščanju o nujnosti varovanja vodnih virov in racionalne rabe vode**. Zaradi pomembnosti vode so vsebine o vodi pogosto vključene v učne načrte različnih predmetov osnovne šole. V okviru projekta smo gradivo, ki je nastalo, uvrstili v štiri predmete/sklope, in sicer biologija, geografija, kemija ter umetnost, pri čemer smo upoštevali horizontalni pristop in interdisciplinarne odnose. Gradivo, ki je nastalo, je primerno tako za formalno kot neformalno poučevanje. Podpira igrifikacijo, sodelovanje, razpravo in izmenjavo izkušenj. Obravnavane teme dvigujejo ozaveščenost in občutljivost za celotno okolje ter z njim povezane težave ter pri učencih spodbujajo trajnostno razmišljanje, kreativnost in kritično mišljenje.

KLJUČNE BESEDE: Voda, trajnostni razvoj, učno gradivo, igrifikacija.

RAISING AWARENESS OF STUDENTS ABOUT THE IMPORTANCE AND PROTECTION OF WATER WITHIN THE ERASMUS+ PROJECT WAT.EDU

ABSTRACT

The paper present the results of the Erasmus+ project titled Wat.Edu - Water Education for Innovative Environmental Learning. The goal of the three-year project, involving four educational institutions and four professional institutions from Slovenia, Hungary, the Czech Republic and Greece, is the development of learning material, which contributes to **raising awareness about the need to protect water sources and for rational water use**. Due to the importance of water, the content about water is often included in curriculums of different subjects in primary school. Within the project, we included the prepared material in four subjects/sets, namely Biology, Geography, Chemistry and Art, whereby we considered the horizontal approach and interdisciplinary relations. The prepared material is suitable for formal and informal teaching. It supports gamification, co-operation, discussion and exchange of experiences. The discussed topics raise awareness and sensitivity for the whole environment and related problems and encourage students for sustainable thinking, creativity and critical thinking.

KEYWORDS: water, sustainable development, learning material, gamification.

VKLJUČEVANJE OKOLJSKIH VSEBIN V POUK SLOVENŠČINE

POVZETEK

V današnjem času je zelo pomembno, da dijake seznanjamo z okoljsko problematiko in jih spodbujamo k razmišljanju. Dijaki so v srednjem poklicnem izobraževanju usmerjeni k pridobivanju funkcionalnih znanj na vseh področjih, še posebej v poklicnem življenju. Zato je pomembno, da za obravnavo neumetnostnih besedil tudi pri slovenščini izbiramo besedila, ki so vezana na njihovo stroko. V prispevku so predstavljeni primeri besedil z vidika razumevanja vsebine, jezikovne analize ter kritičnega razmišljanja v povezavi z okoljsko tematiko. Ugotavljam, da je pravilni izbor vsebine neumetnostnega besedila tisti, ki daje navdih za dijakovo zanimanje najprej za branje, šele nato za jezikovno analizo. Z lastnimi idejami in odgovori so dijaki pokazali, da jih zanima tudi naravno okolje, v katerem živijo in ga bodo v svojem poklicu v prihodnosti soustvarjali. Naloge iz razumevanja vsebine besedila in sporazumevanja so zelo dobro nadgradili z jezikovnim znanjem in glasoslovja, besedoslovja, oblikoslovja in skladnje. Te naloge so se izkazale za zelo uspešne, saj so dijaki celostno povezali usvojeno snov. Učitelji bomo v prihodnosti za kvalitetnejšo uresničevanje ciljev okoljske vzgoje uporabljali širok izbor oblik, metod in pristopov, usmerjali samostojno in skupinsko delo dijakov ter pravilno in strokovno obravnavali teme. Sodelovali bomo tudi z drugimi učitelji in ostalimi sodelavci.

KLJUČNE BESEDE: slovenščina, okoljske teme, bralno razumevanje, jezikovni pouk, kritično razmišljanje.

INCLUSION OF ENVIRONMENTAL TOPICS INTO CLASSES OF SLOVENE LANGUAGE

ABSTRACT

In today's world it is essential to raise awareness about environmental issues among students and to encourage them to think about it. In the process of vocational education students are focused on acquiring functional knowledge in all fields, but mostly in the field of their professional life. Therefore it is important when choosing non-literary texts for Slovene classes to choose those that are related to their professions. In this work I present examples of texts dealt with from different points of view: comprehension, grammar analysis and critical thinking in connection with environmental issues. I deduce that the right choice of reading text topics can be an inspiration for the students to read and only then for grammar analysis. Their own ideas and answers show that they are also interested in the environment they live in and are ready to co-create it in their professions. The tasks of reading comprehension have been upgraded with language knowledge of phonetics, semantics, morphology and syntax. These tasks proved to be very successful as the students were able to incorporate acquired knowledge into a whole. Teachers will strive to use broad spectre of ways, methods and approaches to realize our plans related to environmental issues, encourage team and individual work of the students and deal with these topics in a professional and correct way. We will also cooperate with other teachers and other colleagues.

KEYWORDS: Slovene classes, environmental issues, reading comprehension, grammar lessons, critical thinking.

DEJAVNOSTI, KI UČENCE SPODBUDIJO K PRIJAZNOSTI DO OKOLJA

POVZETEK

Okoljska vzgoja je izredno pomembna že od zgodnjega poučevanja oziroma od vključevanja otrok v izobraževalne sisteme. Pri mlajših otrocih je stopnja razumevanja dokaj na konkretni ravni. Veliko prikazanih in podanih vsebin je preveč abstraktnih, da bi jih učenci lahko dojeli. Zaradi tega sem v razredu okoljske vsebine poskušala prilagoditi tako, da vsak otrok razume in začuti pomen ekologije in pomen lepega ravnanja z okoljem. V izziv mi je bilo pripraviti aktivnosti, ki bi bile prilagojene otrokovi starosti, predvsem pa sem razmišljala o tem, da se bodo aktivnosti in vsebine dotaknile vsakega posameznika na način, ki mu je blizu in zanimiv. Moj namen je bil, da učenci pridejo do spoznanj, zaradi katerih bodo v bodoče imeli odgovoren odnos do narave. S pripravljenimi aktivnostmi, ustvarjanjem, igranjem, petjem, nagovori Zemlji, sajenjem, opazovanjem sem počasi začela opazovati spremembe v vedenju učencev do narave, do okolja. Nekateri so vedenje o primernem ravnanju do okolja poglobili ter nadaljevali z aktivnostmi tudi v domačem okolju, spet drugi pa bodo rabili več časa in spodbude, da bodo uzavestili pomen ohranjanja narave, pri čemer pa igra veliko vlogo družina in njen odnos do narave.

KLJUČNE BESEDE: okolje, narava, aktivnosti, prilagoditve, učenci.

ACTIVITIES THAT STIMULATE PUPILS TO BE KIND TO ENVIRONMENT

ABSTRACT

Environmental education is very important since early years of education and integration of children in education systems respectively. At young age the high level of understanding is mostly based on practical examples. Many shown contents are too abstract for pupils to comprehend. Therefore I tried to adjust environmental issues so that each pupil can understand and feel the value of ecology and the point of kind attitude towards environment. It was a challenge for me to prepare activities adjusted to children at young age. I was mostly thinking in a perspective that activities should be close and interesting to each individual. My intention was that they become aware of the right attitude towards nature. With prepared activities, creating, playing, singing, addressing Earth, planting, observing, I slowly started noticing changes in pupils' behavior towards nature, towards environment. Some of them have even deepen their knowledge and continued with activities in domestic environment, yet other need more time and encouragement for awareness of preserving nature. Big role in this have their families with their attitude towards environment.

KEYWORDS: environment, nature, activities, adjustments, pupils.

USTVARJALNE EKOLOŠKE DELAVNICE V 1. RAZREDU

POVZETEK

Velika količina raznoraznih odpadkov nam dela vse večje preglavice. Kam z njimi? Od začetka epidemije koronavirusa opažam, da se tudi v šoli pri malici zaradi poostrenih higienskih in drugih zahtev pojavljajo vse večje količine embalaže, v katerih je zapakirana hrana in pijača, namenjena šolarjem. V 1. razredu smo se odločili, da naredimo majhen korak k začetku ekološkega ravnanja in ozavestimo dejstvo, da se vse večjemu številu odpadkov ne bomo mogli izogniti. Prvošolci so več mesecev vestno zbirali in shranjevali kartonsko in plastično embalažo, ki se je vsakodnevno kopičila po malici. Po določenem času smo material zbrali na kup in se pogovorili o idejah. Pri urah razredne interesne dejavnosti smo naredili nekaj izdelkov, ki so jih samoiniciativno predlagali učenci. Odločili smo se, da izdelamo preproste izdelke, da popestrimo naš igralni kotiček. Prvošolci so predlagali zelo dobre rešitve za ponovno uporabo odpadne embalaže, pri tem so pokazali veliko mero iznajdljivosti in domišljije. Prednost izdelave igrač iz odpadnega materiala je, da že mlajši učenci lahko sodelujejo pri tem, saj tehnike, kot so rezanje, sestavljanje, lepljenje in barvanje, niso prezahtevne. Slabost teh izdelkov je, da niso za dolgotrajno uporabo, saj se zelo hitro uničijo. S prispevkom želim spodbuditi učitelje, da že v nižjih razredih osnovne šole svoje učence spodbujajo k obravnavi in razmišljanju o ekoloških temah, večkratni uporabi materialov in skrbi za boljši jutri.

KLJUČNE BESEDE: prvošolci, odpadna embalaža, izdelki, igrače.

CREATIVE ECOLOGY WORKSHOPS IN FIRST GRADE

ABSTRACT

Large amounts of various types of waste are causing more and more problems. What are we to do with them? I noticed that stricter hygiene and other requirements in force since the beginning of the corona virus epidemic have resulted in an increasing amount of packaging being used to serve school meals to pupils. The pupils of the first grade and I decided to take a small step towards the beginning of eco-friendly behaviour and to learn that we will not be able to avoid the increasing amounts of waste. For several months, the pupils diligently collected and stored cardboard and plastic packaging that accumulates daily after school lunch. After some time has passed, we gathered all the materials and discussed various ideas on what to do with them. During the time allocated for extra-curricular activities, we produced a few creations that were suggested by the pupils themselves. We opted for simple creations to enliven our play area. Our first graders came up with wonderful solutions on how to reuse packaging waste, showing a great deal of ingenuity and imagination in the process. The advantage of making toys from waste materials is that even younger pupils can participate, as techniques such as cutting, assembling, gluing and painting are not too challenging for them. However, these creations also come with a disadvantage, as they are not suitable for long-term use because they get ruined very quickly. With this paper, my aim is to encourage teachers to start encouraging pupils even in lower primary school grades to discuss and think about topics pertaining to ecology, reuse of materials and overall concern for a better tomorrow.

KEYWORDS: first grade pupils, packaging waste, creations, toys.

EKO PODALJŠANO BIVANJE NA DALJAVO

POVZETEK

V prispevku predstavljam prakso podaljšane bivanja za učence s posebnimi potrebami v času šolanja na daljavo tekom pandemije COVID-19. Pri načrtovanju dnevnih aktivnosti sem poskušala prepletati vse elemente podaljšane bivanja z aktualno obravnavanimi temami pri pouku in vključenostjo oddelka podaljšane bivanja v mednarodno uveljavljen program celostne okoljske vzgoje in izobraževanja – Ekošolo. Dejavnosti za učence so vključevale aktivnosti izdelovanja in uporabe instrumentov ter didaktičnih pripomočkov iz naravnega in odpadnega materiala. Kljub šolanju na daljavo učenci niso pozabili na pomembne vrednote naše šole. Skrbno načrtovane dejavnosti so prispevale k ozaveščanju ponovne uporabe odpadnega materiala ter zavedanju o uporabni vrednosti naravnih materialov. Na podlagi kvalitativnega raziskovanja in ob uporabi metode opazovanja z občasno udeležbo sem dobila vpogled v smiselnost vključevanja okoljskih vsebin v času šolanja na daljavo. Cilj izvedenih dejavnosti je bil zasledovanje načel okoljske vzgoje tudi v času šolanja na daljavo ter preplet vsakdana učencev z izdelavo inovativnih ter predvsem trajnostnih didaktičnih pripomočkov in instrumentov. Ugotovila sem, da so dejavnosti učencem omogočale aktivno participacijo in s tem ponudile občutek ponosa ob odgovornih dejanjih. Procesno delo je rezultiralo v izkustvenem učenju, nadalje pa so dejavnosti v okviru Ekošole spodbudila ekološka dejanja tudi na drugih področjih - interesna dejavnost. Doprinos vidim predvsem v dlje časa uporabnih pripomočkih iz odpadnega in naravnega materiala, ki lahko ob preudarnem razmisleku in ustreznem načrtovanju nadomestijo vsakodnevno tiskanje na papir in enkratno uporabo. Predstavljene dejavnosti pa spodbujajo vse pedagoške delavce k razmisleku o neposrednem vključevanju okoljskih vsebin v svoje delo.

KLJUČNE BESEDE: podaljšano bivanje, posebne potrebe, ekologija, narava, igra, ustvarjalnost.

ECO EXTENDED STAY WHILE DISTANCE LEARNING

ABSTRACT

In this article I represent practice of extended stay for pupils with special needs while distance learning during COVID-19 pandemic. Daily I tried to intertwine all elements of extended stay activities with current lesson's topics and my extended stay department's involvement in international programme »Eco Schools« of environmental education. Pupils' assignments included the activities of making and using instruments and learning gadgets from natural and waste materials. Despite distance learning, pupils have not forgotten the important values of our school. Planned activities have contributed to raising awareness of the reuse of waste materials and useful value of natural materials. Based on qualitative research and using the observation method with occasional participation, I gained an insight into the relevance of integrating environmental content during distance schooling. The aim of the activities was to pursue the principles of environmental education even during distance learning and to intertwine everyday routine with the production of innovative and sustainable didactic gadgets and instruments. I found that the activities allowed pupils active participation, thus offering a sense of pride in their actions. The process work allowed experiential learning, and further encouraged ecological actions in other areas - interest activities. I see the contribution of long-term useful gadgets made from waste and natural material. With careful reflection and proper planning these kind of gadgets can replace daily printing on paper and single use. Presented activities now encourage all teaching staff to consider the direct integration of environmental content into their work.

KEYWORDS: extended stay, special needs, ecology, nature, play, creativity.

ŽIVALSKA LUTKA IZ ODPADNE EMBALAŽE OŽIVI

POVZETEK

Lutke lahko na različnih področjih pomembno vplivajo na razvoj otrok in so izreden pripomoček vzgojno-izobraževalnem procesu. S pomočjo lutk lahko pri otrocih na prijazen in nevsiljiv način spodbujamo gibalne sposobnosti, govor in komuniciranje z okoljem, predvsem pa domišljijo in ustvarjalnost, ki sta izredno pomembni za njihov nadaljnji razvoj, še posebej za učence s posebnimi potrebami. Kadar pa je lutka narejena iz odpadne embalaže, otroke obenem vzgajamo v odgovorne in razmišljujoče osebnosti, da je čista okolica s čim manj odpadki naša prihodnost. Predstavljam projekt, kjer so učenci lastnoročno izdelali vsak svojo unikatno lutko iz odpadne embalaže in se vživeli v svoje vloge ter s pomočjo domišljjskega sveta ustvarili nepozabne igre. Vloge niso bile vnaprej napisane, temveč so bile plod njihove domišljije, v kateri se je rodila želja po medsebojni pomoči in prijateljstvu. Gibalno ovirani otroci so se v tej vlogi počutili samozavestne, sprejete, enakovredne ostalim, saj so v domišljiji z lutko hodili, tekli, skakali, skratka, počeli vse to, česar v realnem svetu ne zmorejo. S takšnim načinom dela v šoli usvojimo veliko učnih ciljev, ki se medpredmetno močno prepletajo in učencem pustijo trajne sledi izkustvenega učenja. Vključevati otroke s posebnimi potrebami v projekte, kjer tem otrokom dvignemo samozavest in jih postavimo v enakovreden položaj z ostalimi otroki, je zagotovo pomemben cilj v učnem procesu, ki ga učitelj ne sme spregledati. Ta način dobre prakse je bil predstavljen bodočim učiteljem in svetovalni službi tega razreda, da bodo v naslednjih letih lahko tak način dela vnesli v učni proces.

KLJUČNE BESEDE: odpadki, recikliranje, medpredmetno povezovanje (spoznavanje okolja, slovenščina, likovna umetnost), dramatizacija, učenci s posebnimi potrebami, 1. vzgojno-izobraževalno obdobje.

ANIMAL PUPPET FROM WASTE PACKAGING COMES TO LIFE

ABSTRACT

Puppets can have a significant impact on children's development in various fields and are an extraordinary tool in the educational process. With puppets, we can encourage children's motor skills, speech, and communication with the surroundings in a friendly and unobtrusive way, and above all, imagination and creativity, which are extremely important for their further development, especially for children with special needs. When the puppet is made from waste packaging, the value of it is even greater, because it raises the child into a responsible and thinking personality, so that a clean environment with as little waste as possible is our future. I present the project where each pupil made a unique puppet from waste packaging and immersed themselves in their roles and created unforgettable plays with the help of an imaginary world. The roles were not written in advance but were the fruit of their imagination, in which a desire for mutual help and friendship was born. Physically handicapped children felt confident, accepted, equal to others in this role, as they walked, ran, jumped, in short, did everything they could not do in the real world. In this way, we achieved many learning goals in school, which are strongly intertwined between the subjects and leave children with lasting traces of experiential learning. Involving pupils with special needs in projects where we raise the self-confidence of these children and put them on an equal footing with other children is certainly an important goal in the learning process that the teacher should not overlook. This way of good practice was presented to future teachers and school counselling service of this class, so that in the coming years they will be able to introduce such a way of working into the learning process.

KEYWORDS: waste, recycling, interdisciplinary integration (Learning about the environment, Slovene, Art), dramatization, pupils with special needs, 1st educational period.

PRISPEVEK K USTVARJALNI ŠOLI – KULTIVACIJA, ŽIVLJENJSKI KROG USTVARJANJA MED ČLOVEKOM IN NARAVO

POVZETEK

Ustvarjalni proces (UP), ki ne izhaja iz človekove osebnosti in naravnih okoliščin, je sam sebi namen. Osnova koncepta ustvarjalne šole, ki ga razvijamo na Srednji šoli za lesarstvo Škofja Loka, je večkrat iz različnih vidikov predstavljena metoda UP, ki jo prakticiramo že več let. Metoda je bila zasnovana za višje razrede dijakov srednjega strokovnega izobraževanja. Razdeljena je na sedem segmentov: situacijo, izziv, raziskavo, eksperimentalni razvoj, izvedbo, rabo in uporabnikovo izkušnjo. Izdelki, ki jih ustvarjamo, so posledica številnih povezovalno prilagoditvenih procesov – kultivacije. V tem prispevku sem predstavil razvojne stopnje UP, življenjski krog ustvarjanja. Razdelil sem jih na pet stopenj (struktur): A. začetek (jedro), B. rast (kristal), C. vrh (ovoj), D. odrast (celica) in E zaključek (lupina). Dijaški izdelki so indikatorji razvojnih stopenj, ki jih dijaki znotraj programskega cikla dosegajo. Z lesarsko konstrukcijskega vidika ločim izdelke tipa A, ki so masivne nesestavljene konstrukcije, in izdelke tipa B, C in D, ki so sestavljene konstrukcije. Izdelki tipa E so lupine oziroma oblikovno odporne konstrukcije. Konstrukcije A, B, C so geometričnih oblik, C, D, E pa organskih. Prve kot posledica dialektične metode ustvarjanja, druge kompleksnejše rizomske. V prispevku sem predstavil razvojni pristop k šolskim projektom in izdelke vseh petih ustvarjalnih stopenj.

KLJUČNE BESEDE: ustvarjalni proces, kultivacija, les, konstrukcija, osebnostni razvoj.

CONTRIBUTION TO THE CREATIVE SCHOOL - CULTIVATION, THE LIFE CYCLE OF CREATION BETWEEN MAN AND NATURE

ABSTRACT

The creative process (CP), which does not derive from human personality and natural circumstances, is an end in itself. The basis of the concept of the creative school, which we are developing at the Secondary School of Wood Science in Škofja Loka, is the CP method, which we have been practicing for several years, presented several times from various aspects. The method was designed for the upper classes of student technicians. It is divided into seven segments: situation, challenge, research, experimental development, implementation, use and user experience. The products we create are the result of many connecting and adapting processes - cultivation.

In this paper, I will present the developmental stages of CP, the life cycle of creation. I divided them into five levels (structures). A. beginning (core), B. growth (crystal), C. top (shell), D. growth (cell) and E end (shell). Student products are indicators of the developmental stages that students achieve within the program cycle. From the woodworking construction point of view, I distinguish between type A products, which are massive non-assembled constructions. Type B, C and D products are composite structures. Type E products are shells or shape-resistant constructions. A, B, C constructions are of geometric shapes, and C, D, E are organic. The first as a result of the dialectical method of creation, the second more complex rhizome. In this paper, I will present a developmental approach to school projects and products of all five creative levels.

KEYWORDS: creative process, cultivation, wood, construction, personality development.

ZELIŠČNI VRT V ČŠOD GORENJE – NARAVNA RAZISKOVALNA UČILNICA

POVZETEK

Centri šolskih in obšolskih dejavnosti predstavljajo zelo pomemben del izobraževanja in vzgoje šolskih otrok, ker se v njih izvajajo vsebine, ki dopolnjujejo in nadgrajujejo obvezni program šole. Vzgojno izobraževalno delo z učenci poteka na terenu v naravi, ob katerem je dana priložnost izkustvenega učenja, katero v učilnici na takšen način ni izvedljivo. Z učenjem v naravi učenci pridobivajo razne pomembne izkušnje za življenje, učijo se odgovornega odnosa do narave, sodelovanja v skupini, medsebojnega spoštovanja. Poleg tega delo izven učilnice poteka bolj sproščeno in spontano. Lahko izpostavimo zelo velik pomen praktičnega učenja v šoli v naravi in uporabnost na ta način pridobljenega znanja, ki ga učenci pridobijo s postopki spoznavanja, doživljanja, zaznavanja in vrednotenja. Zeliščni vrt, kateri je urejen v bližini doma, nam predstavlja raznolik izkustveni učni prostor in mesto za spoznavanje različnih procesov v naravi, prepoznavanje ter določanje različnih zdravilnih rastlin in njihovo praktično uporabo. Obenem daje učencem priložnost za delo z zemljo in orodjem in v njih vzpodbuja pozitivno naravnan odnos do narave in naravno pridelane hrane. Učenci zdravilne rastline na vrtu prepoznajo s svojimi čutili, z vonjanjem, tipanjem, okušanjem. Zaradi tega so pri svojem delu dosti bolj zagnani, bolje sprejemajo nove informacije. Iz zdravilnih rastlin iz vrta se učenci naučijo pripraviti različne zeliščne pripravke in spoznavajo načine njihove uporabe. Iz tega se lahko povzame, da pouk v naravi, ki je raziskovalno, praktično in medpredmetno zasnovan predstavlja za učence učenje za življenje. Takšen primer dobre prakse je v tem času, ko otroci zaradi načina življenja vse bolj izgubljajo stik z naravo zelo pomemben, saj jih s poučevanjem v naravi vzpodbujamo k trajnostnemu razvoju in povezanosti z okoljem.

KLJUČNE BESEDE: učilnica v naravi, zeliščni vrt, izkustveno učenje.

HERB GARDEN IN ČŠOD GORENJE – NATURAL RESEARCH CLASSROOM

ABSTRACT

Centres for School and Outdoor educations represent a very important part of the education and schooling of children, as they implement content that complements and builds on the school's compulsory programme. Educational work with pupils takes place in natural terrain where children have the opportunity to learn from experience, which cannot be performed in the classroom. By learning in nature, the students gain various important experiences for life, learn responsible attitudes towards nature, participate in a group and practice mutual respect towards one another. Additionally, working outdoors takes place in a more relaxed and spontaneous atmosphere. We are able to highlight the very importance of practical learning in nature and the usefulness of the knowledge acquired by pupils through the processes of cognition, experience, perception and evaluation. The herb garden, which is arranged near the Čšod center, represents a diverse learning area and a place for acquiring knowledge about different processes in nature, recognizing and identifying different medicinal plants and using them practically. At the same time, it offers students the opportunity to work with land and tools and encourages a positive attitude towards nature and naturally produced food. Pupils identify the medicinal plants in the garden through smelling, touching and tasting. This leads to greater enthusiasm and acceptance towards new information they are exposed to. By using medicinal plants from the herb garden, students learn to compose and use different herbal preparations. It can be concluded that nature based schooling, which is an interdisciplinary educational approach, combining research and hands-on practice, enables the pupils to achieve a comprehensive life-long learning. This kind of fieldwork is especially crucial in this day and age, when children are increasingly losing their connection to nature due to their lifestyle, as it promotes continual development and strengthens their bond with the environment.

KEYWORDS: classroom in nature, herb garden, experiential learning.

INTERESNA DEJAVNOST MALI EKOLOGI KOT PRIMER DOBRE PRAKSE V OSNOVNI ŠOLI

POVZETEK

Interesna dejavnost Mali ekologi je primer inovativnega pristopa, s katerim učence spodbujamo k oblikovanju pozitivnega odnosa do sobivanja z naravo, okolja v katerem živimo, živali in hrane. Učenci na sproščen in poučen način, večinoma preko igre, spoznavajo, raziskujejo in razvijajo zavedanje o pomenu naših odločitev ter ravnanja na okolje. Prispevek prikazuje primere ekoloških vsebin pedagoškega dela z učenci od 1. do 4. razreda. Kot mali ekologi so odkrivali podvodni morski svet in vpliv odpadkov na živali in rastline v oceanih in morjih. Preko igre, sodelovalnega in skupinskega dela so raziskovali gozd, spoznavali njegov pomen in sobivanje človeka z gozdnimi živali ter rastlinami. Naučili so se varčnega ravnanja s papirjem, katerega znajo ponovno uporabiti za izdelavo novega. Ročne spretnosti ter ustvarjalnost so učenci razvijali pri izdelovanju ptičjih krmilnic. Le-te so jim omogočale opazovanje ptic na domačem vrtu. Interesna dejavnost učencem omogoča pridobivanje novih izkušenj, razvijanje odgovornosti, kritičnega razmišljanja, ustvarjalnosti in čuječnosti.

KLJUČNE BESEDE: sobivanje z naravo, interesna dejavnost, učenje preko igre, praktično delo.

THE LITTLE ECOLOGISTS ACTIVITY AS AN EXAMPLE OF GOOD PRACTICE IN PRIMARY SCHOOL

ABSTRACT

The Little Ecologists activity is an example of an innovative approach that encourages pupils to form a positive attitude towards coexistence with nature, the environment in which we live, animals and food. In a relaxed and instructive way, mostly through play, pupils learn, research, and develop an awareness of the importance of our decisions and how we act on the environment. The article presents examples of ecological contents of pedagogical work with students in grades 1 through 4. As little ecologists, they discovered the underwater marine world and the impact of waste on animals and plants in the oceans and seas. Through play, collaboration, and group work, they explored the forest, learned about its importance and the coexistence of man with forest animals and plants. They have learned to use paper sparingly. They have also learned how to reuse it to make a new one. The pupils developed manual skills and creativity in making bird feeders. These allowed them to observe birds in their home garden. The activity enables pupils to gain new experiences, develop responsibility, critical thinking, creativity, and mindfulness.

KEYWORDS: coexistence with nature, interest activity, learning through play, practical work.

ZAVAROVANA OBMOČJA SLOVENIJE (PRIMER UČNE URE)

POVZETEK

V prispevku se osredotočimo na poučevanje geografije in njenega doprinosa k pomenu in ohranjanju zavarovanih območij Slovenije. Izobraževanje na srednji šoli je še nedavno potekalo na daljavo, kar je pomenilo, da je bila uporaba informacijsko-komunikacijske tehnologije in uporaba različnih spletnih orodij neizogibna. Pri pripravi teme o zavarovanih območjih Slovenije smo dijakom najprej pripravili spletno anketo, pri kateri nas je zanimalo predvsem njihovo predznanje o sami obravnavni tematiki. Znanje dijakov se je izkazalo za dobro, poglobljeno pa smo temo obravnavali v nadaljevanju, srečali smo se preko spletne aplikacije ter zapisali ideje o pomenu vseh deležnikov pri ohranjanju zavarovanih območij. Posamezniki bodo svoje novo znanje uporabili v praksi in prenašali znanje na nove generacije.

KLJUČNE BESEDE: poučevanje na daljavo, dijaki, anketa, zavarovana območja Slovenije, okolje.

PROTECTED AREAS IN SLOVENIA (LESSON EXAMPLE)

ABSTRACT

In this paper, we focus on teaching geography and its contribution to the importance and preservation of protected areas in Slovenia. Until recently, high school education took place remotely, which meant that the use of information communication technology and the use of various online tools was inevitable. When preparing the topic on protected areas in Slovenia, we first prepared an online survey for students, in which we were mainly interested in their prior knowledge of the topic. The knowledge of the students turned out to be good, and we discussed the topic in depth in an live online event. The participants wrote down ideas about the importance of all stakeholders in the preservation of protected areas. Individuals will put their new knowledge into practice and pass it on to new generations.

KEYWORDS: remote learning, students, survey, protected areas of Slovenia, environment.

RAZISKOVANJE ZVOČNEGA ONESNAŽEVANJA IN HRUPA V ŠOLSKIH PROSTORIH Z UČENCI RAZREDNE STOPNJE

POVZETEK

Naša okolica je polna zvokov, prijetnih in neprijetnih. Neprijeten, nezaželen zvok ali hrup je onesnaževalec življenjskih okolij. Je moteč in znižuje kvaliteto naših življenj ter negativno vpliva tudi na živali. Pri daljšem izpostavljanju hrupa iz okolja in v prostoru lahko pride do motenj sluha, nihanja v razpoloženju, slabše koncentracije, oteženo je tudi komuniciranje med ljudmi. Povod za raziskovanje o zvočnem onesnaževanju in hrupu v šoli so učenci 3. razreda dobili, ko so pred šolo gradili šolsko igrišče. Gradbeni stroji so povzročali konstanten hrup, ki je bil zelo moteč dejavnik pri izvajanju pouku in igri. Nadalje so učenci ugotavljali, da je hrupno tudi v jutranjem času, ko prihajajo v šolo zaradi prometa in tudi na šolskih hodnikih zaradi preglasnega govorjenja in kričanja učencev. Na podlagi vseh teh ugotovitev smo z učenci v razredu rešili anketo o hrupu, ugotavljali kaj vse povzroča zvočno onesnaženost v šolskem okolju in opravili meritve hrupa v okolici šole in šolskih prostorih. Meritve hrupa so pokazale, da presegajo mejne vrednosti, zato smo iskali rešitve, ki bi pripomogle k zmanjšanju hrupa in rešitve, kako se povečanemu hrupu tako iz okolja kot v šoli izogniti. Hrup v razredu smo zmanjšali, v nadaljevanju pa bodo predstavljene rešitve našega dela tudi ostalim učencem šole. Da bi zmanjšali hrup v okolici šole in v šoli so možne, vendar pa morajo v teh spremembah sodelovati vsi učenci šole in spremeniti določene navade. S spremembami bomo lahko veliko pripomogli k boljšemu počutju in zdravju vseh ljudi na šoli.

KLJUČNE BESEDE: zvok, onesnaževanje, okolje, hrup.

EXPLORING SOUND POLLUTION AND NOISE ON SCHOOL PREMISES WITH STUDENTS OF THE FIRST GRADES OF PRIMARY SCHOOL

ABSTRACT

Our surroundings are full of sounds. Some are pleasant and some are not. An unpleasant, unwanted sound is a pollutant of our living environments. It is disruptive and it reduces the quality of our living environments. It also has a negative impact on animals. Being exposed to environmental noise for a longer period of time can lead to hearing disorders, mood swings, poor concentration, communication between people is made difficult. Third grade students came across the idea to research sound pollution and noise in school when a school playground was being built in front of our school. Construction machines caused constant noise, which was a disturbing factor at school work and play. Furthermore, students became aware of the growing morning noise, especially at the time of their arrival at school due to the traffic, as well as in the hallways due to loud talking and screaming of the students. On the basis of these findings, we answered a questionnaire about noise, we looked for the sources of sound pollution in our school surroundings and measured noise in the surroundings of the school as well as inside the school. The measurements have shown that they exceed the limit values, so we started to look for solutions to help reduce the noise, and solutions how to avoid the noise from the surroundings as well as inside the school. We have successfully reduced the noise within the class, the solutions will be presented to other students in our school. It is possible to reduce the noise in the school surroundings if all the students take active part in these changes and change certain habits. With the changes we will contribute a lot to the well-being and health of all the people at school.

KEYWORDS: sound, pollution, environment, noise.

EKOLOŠKE AKTIVNOSTI V 3. RAZREDU OSNOVNE ŠOLE

POVZETEK

Okoljska vzgoja se pri učencih prične že v prvem razredu, njene vsebine in dejavnosti pa se dopolnjujejo skozi nadaljnje osnovnošolsko izobraževanje. Poučujem tretješolce, s katerimi obravnavamo različne okoljske in ekološke vsebine ter s tem dosegamo učne cilje, zapisane v Učnem načrtu za spoznavanje okolja. V prvem delu prispevka bom predstavila, s katerimi projekti in aktivnostmi želimo na ravni celotne šole oblikovati pozitiven in odgovoren odnos učencev do narave, okolja, našega planeta Zemlja. Nato sledi nekaj primerov dobre prakse pri poučevanju ekoloških vsebin v tretjem razredu. Opisala bom aktivno sodelovanje v projektu Vodni agent, katerega glavni namen je bil izobraževanje o okolju in vodnih virih ter o nujnosti varovanja le-teh. Pomemben učni cilj okoljske vzgoje je tudi ta, da znajo učenci opisati ustrezna ravnanja z odpadki. Predstavila bom, kako smo z učenci pri pouku v naravi obravnavali učno vsebino o odpadkih ter pri tem hkrati uporabljali tudi IKT tehnologijo, ki pa ni služila le kot popestritev pouka, temveč so učenci z različnimi nalogami lahko sproti preverili svoje znanje, ga dopolnili ali utrdili. Delila bom tudi nekaj idej, ki jih pri ustvarjanju skozi celotno šolsko leto uresničimo z recikliranjem odpadnega materiala. Pri vseh omenjenih vsebinah pa menim, da je zelo pomembno, da učence čim pogosteje peljemo v naravo, da jo opazujejo in doživljajo z vsemi čutili, saj bodo le tako lahko oblikovali pozitiven, skrben in odgovoren odnos do nje.

KLJUČNE BESEDE: okoljska vzgoja, vodni viri, ravnanje z odpadki, recikliranje.

ECOLOGICAL ACTIVITIES IN THE 3RD GRADE OF PRIMARY SCHOOL

ABSTRACT

For students, environmental education begins in the first grade, and its contents and activities are built up through further primary education. I teach third-graders, with whom we discuss different environmental and ecological topics and in doing so achieve learning objectives set in the curriculum for the environmental studies. In the first part of my article, I will present which projects and activities we want to carry out at our school to form a positive and responsible attitude of students towards nature, the environment, our planet Earth. Then follow some examples of good practice in teaching ecological contents in the third grade of primary school. I will describe the active participation in the project "Vodni agent", the main purpose of which was education of the environment and water resources and the need to protect them. An important learning objective of environmental education is that students are able to describe the correct way of dealing with waste. I will present how we discussed learning content about waste with students in outdoor lessons and at the same time used ICT technology, which not only served to diversify the lesson, but students were able to test, complement or fortify their knowledge with it. I will also share some ideas for creations that we realize throughout the school year by recycling waste material. With all the mentioned contents, I think it is very important to take students to nature as often as possible, to observe and experience it with all senses, because only then will they be able to form a positive, caring and responsible attitude towards it.

KEYWORDS: environmental education, water resources, dealing with waste, recycling.

PET KORAKOV OKOLJSKE VZGOJE V PRVI TRIADI OSNOVNE ŠOLE

POVZETEK

Okolju prijazno vedenje je potrebno prebujati že pri najmlajši generaciji, primarno v družini in v vzgojno izobraževalnih institucijah. Z metodo razlage, praktičnega prikazovanja, razgovora, razprave, opazovanja, zaznavanja, skupinskega dela, igre vlog, kviza in izkustvenega učenja sem spremljala doseganje zastavljenih ciljev. Pri izvedbi čistilne akcije so učenci aktivno sodelovali ter dodali svoj zgled in doprinos k čistemu okolju. Preko igre vlog in ekoloških pravljic so se seznanili s škodljivimi pojavi za okolje, ki nastanejo zaradi človeške malomarnosti. V šoli drug drugega opazujejo, opozarjajo ter spodbujajo k ločevanju odpadkov v posamezne zabojnike ter znajo utemeljiti pomen ločenega zbiranja odpadkov. Z zbiranjem zamaškov si krepijo kolektivno zavest pomagati najšibkejšim v naši družbi. Naučili so se prepoznati nevarne odpadke in simbole za nevarne snovi ter razložiti škodljivost nevarnih odpadkov. V šolo prinašajo in zbirajo odpadne baterije. Spoznali so pomen recikliranja papirja, kovin, embalaže in plastike. Iz odpadnega papirja so se naučili izdelati papir. Izdelali so igrače ter druge izdelke iz odpadne embalaže. Kot mali okoljevarstveniki v okviru razredne skupnosti ali kot posamezniki objavljajo v ekološkem kotičku novice iz ekoloških projektov. Kot učiteljica spodbujam in usmerjam učence, da bodo razmišljali o ekološki higieni na način, kot razmišljajo o osebni higieni. S petimi koraki sem celo šolsko leto gojila ekološko zavest pri učencih. Ta se še vedno nadaljuje in nadgrajuje v višjih razredih.

KLJUČNE BESEDE: odpadki, ločevanje, recikliranje, mali okoljevarstveniki, ekološki kotiček.

FIVE STEPS OF ENVIROMENTAL EDUCATION IN FIRST YEARS OF PRIMARY SCHOOL

ABSTRACT

Environmental awareness is important to encourage at an early age, primary in family and educational institutions. I have monitored achieved goals by explanation, practical demonstration, discussion, observation, perception, team work, role play, quiz and real-life learning. At Clean Up campaign they contribute to clean environment. By games and ecological fairytales, it was acknowledged toxic impact that people have on environment caused by human negligence. At school, kids observed, warned and encouraged each other to separate waste into individual containers and acknowledged the point of waste separation. By collecting corks, they strengthened their group consciousness to help the weakest in our society. They learned to recognize hazardous waste and its symbols. They bring to school depleted batteries. They mastered the importance of recycling paper, metals and plastics. They learned to make paper from waste paper. They made toys and other products from the waste. As young environmentalists within the class community or as individuals, they publish news from ecological projects in the ecological corner. As a teacher, I encourage and guide kids to think about environmental hygiene in the same way as personal hygiene. With five steps, I gained kids ecological awareness throughout all school year. This is still being continued and upgraded in the higher classes.

KEYWORDS: waste, separation, recycling, young environmental advocates, ecological corner.

OBRAVNAVA EKOLOŠKIH POSLEDIC COVID 19 SKOZI NEUMETNOSTNA BESEDILA

POVZETEK:

Ekologija je pomemben del našega vsakdana in jo vključujemo v obvezne vsebine pri poučevanju slovenskega jezika. Ekološke tematike se lotevamo pri obravnavi objektivnih in subjektivnih besedil, publicističnih besedil in opisov. Razumevanje strokovnih terminov je zaradi zmanjšanja bralnih navad pri osnovnošolcih zelo omejeno in iz generacije v generacijo nazaduje. Izziv je bil povezati metode poučevanja slovenskega jezika načrtovane v 6., 7., in 8. razredu s temami ekologije ter s tem spodbuditi razmišljanje o ekološkem ravnanju. Plastični izdelki so se v pandemiji COVID 19 še bolj razširili. Poraba plastike se je v tem času močno povečala prav zaradi povečanega zanimanja za »hrano za domov« ter s tem povezane embalaže. Maske so posebna ekološka obremenitev COVID pandemije in velik ekološki problem v večini držav. Zaščitna oblačila in plastične rokavice se proizvajajo in porabljajo v rekordnih količinah. Enako obremenitev predstavlja proizvodnja in uporaba čistil in razkužil. Vse to je COVID 19 postavilo v ospredje vzrokov ekološkega onesnaževanja. Skozi metodološki pristop smo povezali izrazoslovje ekologije in varovanja okolja v objektivnih in subjektivnih besedilih, publicističnih besedilih in različnih vrstah opisov. Učenci so sodelovali pri pripravi razlag ekološke problematike s primeri pri obveznih vsebinah poučevanja slovenskega jezika v obliki opisa bolezni v 6. razredu, publicističnega besedila - intervjuja, novica in pročila v 7., 8., in 9. razredu. Izvedli bomo tudi čistilno akcijo v okolici šole. Učenci bodo objavili novice v krajevnem časopisu, šolskem glasilu in na spletnih straneh. Uspešnost obravnave ekoloških vsebin smo preverjali skozi pogovor, govorne nastope in branjem ter objavo besedil.

KLJUČNE BESEDE: Slovenski jezik, bralno razumevanje, metode poučevanja, ekologija, medpredmetna povezava.

ADDRESSING THE ECOLOGICAL CONSEQUENCES OF COVID 19 THROUGH NON-LITERARY TEXTS

ABSTRACT

Ecology is an important part of our everyday life and we include it in the mandatory content of teaching the Slovenian language. We address ecological issues in the treatment of objective and subjective texts, journalistic texts and descriptions. Due to the reduction of reading habits by primary school students, the understanding of professional terms is very limited and is worse from generation to generation. The challenge was to connect the methods of teaching the Slovene language planned in 6th, 7th and 8th grade with the topics of ecology, and thus to encourage thinking about ecological behavior. Plastic products have become even more widespread in the COVID 19 pandemic. Consumption of plastics has risen sharply during this time due to increased interest in "take away food " and related packaging. Masks are a special ecological issue of the COVID pandemic and a major ecological problem in most countries. Protective clothing and plastic gloves are produced and consumed in record quantities. The same ecological problem is the production and use of cleaners and disinfectants. All this has put COVID 19 at the forefront of the causes of ecological pollution. Through a methodological approach, we connected the terminology of ecology and environmental protection in objective and subjective texts, journalistic texts and various types of descriptions. Pupils participated in the preparation of explanations of ecological issues with examples of compulsory contents of teaching the Slovenian language in the form of a description of the disease in 6th grade, journalistic text - interviews, news and readings in 7th, 8th and 9th grade. We will also carry out a cleaning campaign around the school. Students will publish news in the local newspaper, school newsletter and on websites. We checked the success of the treatment of ecological content through conversation, speeches and reading and publishing texts.

KEYWORDS: Slovenian language, reading comprehension, teaching methods, ecology, interdisciplinary connection.

OZAVEŠČANJE UČENCEV O POMENU EKOLOŠKO IN LOKALNO PRIDELANE HRANE

POVZETEK

Z namenom ozaveščati učence o pomenu zdrave, ekološko in lokalno pridelane hrane, smo organizirali dan dejavnosti za učence predmetne stopnje. K sodelovanju smo povabili več zunanjih strokovnjakov, med drugimi dve profesorici Fakultete za kmetijstvo in biosistemske vede Univerze v Mariboru, strokovnjakinjo za zdravo prehrano ter lokalno kmetijo, katere izdelki so pogosto na šolskem jedilniku. Učenci so skozi dan spoznali pomen lokalno pridelane hrane, razvijali spoštovanje do lokalnih pridelovalcev, spoznali osnove ekološkega kmetovanja in pomen označb na pakiranih izdelkih. Učenci so se odpravili na eno izmed lokalnih kmetij, prav tako so učenci s pomočjo strokovnjakinje za zdravo prehrano pripravljali zdrave jedi, ki so jih ob koncu dneva ponudili v degustacijo svojim vrstnikom. V toplejših dnevih so se učenci pri različnih predmetih in ob drugih dnevih dejavnosti pogosto odpravili v šolsko učilnico v naravi, kjer so svoja znanja s področja ekološkega kmetijstva uporabili v praksi v šolskem vrtu. Izdelali so različne vrste gred in na njih pridelali pridelke. Ob opazovanju rasti pridelkov so bili nase zelo ponosni, začeli so ceniti delo na vrtu, prav tako so pridobili delovne navade, saj so za rast pridelkov skrbeli sami. S takšnim načinom poučevanja so učenci veliko bolj motivirani za delo, njihovo znanje pa je tudi praktično uporabno.

KLJUČNE BESEDE: učenci, ekološko kmetijstvo, lokalno pridelana hrana, pridelki, zdrava prehrana.

RAISING STUDENTS' AWARENESS OF THE IMPORTANCE OF ORGANICALLY AND LOCALLY PRODUCED FOOD

ABSTRACT

In order to make students aware of the importance of healthy, organic and locally produced food, we organized an activity day for students of the third triad. We invited several external experts to participate, including two professors from the Faculty of Agriculture and Life Sciences of the University of Maribor, an expert in healthy eating and a local farm, whose products are often on the school menu. Throughout the day, students have learned about the importance of locally produced food, developed respect for local producers, learned the basics of organic farming and the importance of labels on packaged products. The students went to one of the local farms. Moreover, with the help of a healthy nutrition expert, the students prepared healthy dishes, which they offered for tasting to their peers at the end of the day. On warmer days, students often went to the school classroom in nature at various subjects and on other days of activities, where they used in practice their knowledge in the field of organic farming in the school garden. They made different types of shafts and grew crops on them. While observing the growth of crops, they were very proud of themselves, they began to appreciate working in the garden, and they also acquired work habits, as they took care of the growth of the crops themselves. With this way of teaching, the students are much more motivated for work, and their knowledge is also practically useful.

KEYWORDS: students, organic farming, locally produced food, healthy food, crops.

EKOLOŠKE VSEBINE IN TRENDI V VZGOJNO-IZOBRAŽEVALNIH PROGRAMIH

POVZETEK

Naš planet zelo trpi, saj se utaplja v odpadkih. Le-teh je vedno več, saj so izdelki narejeni za enkratno uporabo ali pa je njihova življenjska doba vedno krajša. Tudi gospodarska rast je povezana z naraščanjem količin odpadkov. Odgovornost za zmanjševanje le-teh je na nas in na naslednjih generacijah. Prvi korak k izboljšanju stanja je v tem, da spoštujemo naravo in se usmerimo v iskanje načinov, kako obvarovati planet in njegovo naravno ravnovesje. S poučevanjem in osveščanjem je potrebno pričeti pri najmlajših in v njih zbuditi skrb za okolje ter predstaviti temeljna spoznanja o odpadkih. V prispevku predstavljam nekaj aktivnosti, katere smo izvedli z učenci na temo ozaveščanja o ravnanju z odpadki in ohranjanju okolja. Odpadke smo reciklirali in jih spremenili v nove predmete. Znanja o odpadkih smo razširili na druga predmetna področja ter razvijali ustvarjalnost, kritičnost, strpnost, sodelovanje in spoštovanje. Učenci so se s problematiko ohranjanja okolja seznanili pri različnih vzgojno-izobraževalnih vsebinah. Poleg proučevanja narave so spoznali odpadke vseh vrst, katere so nato razvrščali glede na snov, iz katere so narejeni. Z analitičnim pristopom smo z uporabo metode anketiranja pridobili podatke o okoljski ozaveščenosti učencev in razvrščanju odpadkov doma. Ugotovili so, da lahko za okolje največ naredijo sami, če poznajo osnove in zakonitosti ločenega zbiranja odpadkov. Namen našega projekta je bil sprememba miselnih ter vedenjskih vzorcev, katere bodo prenašali tudi izven razreda in šole. Doprinos prispevka k stroki ni le v okoljskem ozaveščanju učencev, temveč tudi v uporabnosti recikliranih izdelkov. V našem primeru so to didaktične igre.

KLJUČNE BESEDE: odpadki, ločeno zbiranje, reciklaža, medpredmetno povezovanje.

ECOLOGY AND TRENDS IN EDUCATIONAL PROGRAMES

ABSTRACT

Our planet is suffering greatly as it is drowning in waste. Most of the products are made for single use and their lifespan is becoming shorter. Economic growth also contributes to more waste. The responsibility for reducing these quantities lies on us and the future generations. The first step to improving the situation is to respect the nature and focus on finding ways how to protect the planet and its natural balance. It is necessary to present basic knowledge about waste to the youngest and to awaken their care for the environment. In this article, I present some activities that we carried out with students about raising awareness considering waste management and environmental protection. We recycled some waste materials and made new products. Their knowledge about waste was expanded to other subject areas and they developed creativity, critical thinking, tolerance, cooperation and respect. In addition to studying nature, they became acquainted with waste of all kinds, which they classified according to the substance they were made of. Using an analytical approach, we used the survey method to obtain data on students' environmental awareness and waste sorting at home. They realized that they could help the environment if they knew the basics about waste collection and recycling. The purpose of our project was to change thinking and behavioural patterns, which would be transmitted outside school. The contribution of the project is not only in the environmental awareness of students, but also in the usefulness of recycled products. In our case, didactic games.

KEYWORDS: waste, separate waste collection, recycling, cross-curricular integration.

VAROVANJE EKOLOŠKO POMEMBNIH OBMOČIJ IN UPORABA INOVATIVNIH UČNIH ORODIJ IN PRISTOPOV PRI TERENSKEM DELU - SPLETNI HERBARIJ NA PRIMERU MARIBORSKEGA OTOKA

POVZETEK

Pri predmetu Varstvo naravnih vrednot v programu Naravovarstveni tehnik, na Biotehniški šoli Maribor pri praktičnem pouku v okviru vzgojno - izobraževalnega dela opravljamo terenske vaje, kjer dijaki spoznavajo habitate redkih prosto živečih rastlinskih vrst, biotsko raznovrstnost, na ekološko pomembnih območjih v bližnji okolici šole na Mariborskem otoku, ki se nahaja na zavarovanem območju Nature 2000. Zakon o ohranjanju narave, opredeljuje območja nature 2000, kot varovana območja. Rastline ki jih spoznavamo v redkih rastiščih, ni dovoljeno nabirati, trgati in izkopavati. Inovativni pristop z uporabo spletnih orodij pri terenskem delu je enostaven pripomoček učencem in učiteljem. Služi za delno spremljanje ugodnega stanja ter natančno lokacijo habitatnega tipa z redkimi rastlinskimi vrstami. Pri terenskem delu dijaki uporabljajo mobitele, kamor si naložijo spletno aplikacijo kompas. S pomočjo rastlinskih ključev določijo rastlinske vrste in v računalniški učilnici izdelajo spletni herbarij. Problemsko - izkustveno učenje z poudarkom na samostojnem in timskem delu: prepoznavanje negativnih vplivov človeka na rastline, raziskovanje rastiščnih razmer, prepoznavanje značilnosti rastlin po taksonomiji, klasifikacija rastlin po taksonomiji.

KLJUČNE BESEDE: spletni herbarij, nova učna orodja, terensko delo, taxonomija.

PROTECTION OF ECOLOGICALLY IMPORTANT AREAS AND USE INNOVATIVE LEARNING TOOLS AND APPROACHES IN FIELD WORK - ONLINE HERBARIA ON THE EXAMPLE OF MARIBOR ISLAND

ABSTRACT

In the subject Nature Protection in the Nature Conservation Technician program, at the Biotechnical School Maribor we conduct field exercises in practical classes as part of educational work, where students learn about the habitats of rare wild plant species, biodiversity in ecologically important areas near the school on the island of Maribor, located in the Natura 2000 protected area. The Nature Conservation Act defines nature 2000 areas as protected areas. The plants we get to know are not allowed to be harvested, plucked and excavated. An innovative approach using online tools in field work is an easy tool for students and teachers. It serves for partial monitoring of the favorable condition and the exact location of the habitat type with rare plants. In the field work, students use mobile phones to download the compass web application. With the help of plant keys, they identify plants and create an online herbarium in the computer room. Problem - experiential learning with emphasis on independent and team work: recognition of negative human influences on plants, research of site conditions, recognition of plant characteristics by taxonomy, classification of plants by taxonomy.

KEYWORDS: online herbarium, new learning tools, fieldwork, taxonomy.

POGANJAM PEDALA, TOREJ SEM - EKOLOŠKI DOPUST

POVZETEK

V specialnih zavodih, kjer poteka delo z otroki s posebnimi potrebami, smo strokovni delavci dnevno izpostavljeni stresnim situacijam. Preizkušena metoda za razgradnjo stresa je gibanje. Blagodejni učinek je toliko bolj trajnosten, kolikor dlje se nahajamo v naravi. Popotovanje s kolesom je zelo učinkovita metoda, da si posameznik povrne moč in notranji mir za posvečanje otrokom s posebnimi potrebami in dobro delovanje v šolskem okolju. Kolo je najbolj ekološko prevozno sredstvo. Osebno svetovanje je koristno za vse, ki se prvič podajajo na takšno popotovanje. Načrtovati je potrebno pot, opremo in prehrano. Tematiko bom v okviru Promocija zdravja na delovnem mestu predstavila celotnemu učiteljskemu zboru srednje šole Zavoda za gluhe in naglušne Ljubljana na posebni tematski konferenci. Dejavnost že izvajam s svetovanjem in lastnim zgledom. Za dijake pripravljam delavnico za dan interesnih dejavnosti na temo kolesarjenje za boljšo kondicijo in manj ogljičnega odtisa. Na neformalen način vključujem vsebine iz področij skrbi za kondicijo, ekologijo, ogljični odtis v praktične primere pri pouku.

KLJUČNE BESEDE: specialni zavodi, premagovanje stresa, ekologija, popotovanje s kolesom, ekokolesarjenje.

I CYCLE THEREFORE I AM - ECO VACATION

ABSTRACT

In specialized institutions for children with special needs, teachers and other staff have to deal with stressful situations daily. Movement is a time-tested method for reducing stress. The more time we spend in nature, the longer-lasting the beneficial effect. Cycling road trips are a highly effective method for an individual to recharge and regain inner peace to be able to work with children with special needs and to perform well in the school environment. The bicycle is also the most ecological means of transport. Personal coaching is helpful for anyone embarking on such a journey for the first time, since it is necessary to plan the route, equipment and food. I shall give a presentation on the topic to the entire teaching staff at a teacher conference and prepare a workshop for the students for the extracurricular activities day.

KEYWORDS: specialized institutions, overcoming stress, ecology, cycling road trips, eco-cycling.

RAZISKOVALNO DELO KOT OBLIKA IZOBRAŽEVANJA O EKOLOŠKIH VSEBINAH

POVZETEK

Pri opravljanju rednega pedagoškega dela vsako leto zelo rada sodelujem z mladimi raziskovalci, ki jih zanima naravoslovno področje. Raziskovali smo že o Kozjanskem parku in nasadih starih drevesnih vrst v sadovnjakih, proizvodnji jajc različnih rej na kokošji farmi, glivah kvasovkah v biokemijskih procesih, proizvodnji plastike, o zorenju banan. Ekološko ozaveščanje pri najmlajših je ključnega pomena za ohranjanje ravnovesja v prihodnje na našem planetu. Z različnimi metodami raziskovanja širimo znanje in spodbujamo razmišljanje. III. OŠ Celje je osnovna šola, ki je locirana v samem mestnem središču. V njem ni veliko zelenih površin. Predstavila bom primer raziskovalne naloge, ki je bila posvečena dvokrpemu ginku, drevesu, ki velja za živi fosil, vendar je kljub temu v Celju dokaj razširjeno. Na javnih površinah Mestne občine Celje je nasajenih kar nekaj ginkovih dreves. Rastejo v parkih, ob prometnih cestah, športnih igriščih, šolah in na domačih vrtovih. V okviru raziskovalne naloge smo naredili popis ginkov, nabrali liste in jih pripravili za nadaljnje kemijske analize. Ginkovi listi so v svetu prepoznani kot eno najbolj proučevanih in širše uporabnih zelišč za zdravljenje ljudi. Z raziskovanjem prenašamo ideje mladih raziskovalcev med širšo populacijo otrok.

KLJUČNE BESEDE: raziskovalno delo, analiza vzorcev, ekološko ozaveščanje.

RESEARCH AS A FORM OF EDUCATION ON ECOLOGICAL ISSUES

ABSTRACT

Besides my regular pedagogical work, I like working with young researchers who are interested in the natural sciences. We do a new research every year and so far we have done researches on the Kozjansko Regional Park and plantations of old tree species in orchards, egg production of different breeds on a chicken farm, yeast fungi in biochemical processes, plastic production, ripening of bananas. In my opinion, ecological awareness-raising among the youngest children is crucial for maintaining balance of our planet in the future. Through different research methods, we expand knowledge and encourage thinking. Our home school, III. Primary School Celje is located in the heart of the town. It does not have many green spaces. In my paper, I will present an example of a research assignment that was dedicated to ginkgo (*Ginko biloba*), a tree that is considered a living fossil but is nevertheless quite widespread in Celje. There are a number of ginkgo trees planted in public areas of the Municipality of Celje. They grow in parks, along busy roads, sports grounds, schools and in private gardens. As part of our research, we took an inventory of the ginkgo trees, collected the leaves and prepared them for further chemical analysis. Ginkgo leaves are recognised worldwide as one of the most widely studied and widely used herbs for human healing. Through the research, we share the ideas of young researchers to a wider population of children.

KEYWORDS: research, sample analysis, ecological awareness.

PROJEKTI EKOŠOLE NA DALJAVO

POVZETEK

Šolsko leto 2020/21 je pred udeležence izobraževalnih procesov postavljalo izzive. Okoliščinam smo se na vseh nivojih izvajanja vzgojno-izobraževalnega procesa prilagajali tako učenci, dijaki in študentje kot pedagoški delavci. Z izvajanjem pouka na daljavo smo se srečali že spomladi 2020, zato smo glede pouka v jesen stopili boljše pripravljene. Več iznajdljivosti pri delu na daljavo je od nas zahtevalo izvajanje projektov. V prispevku bom predstavila, kako smo v preteklem šolskem letu na daljavo izvedli projekte Ekošole: Ne zavrzi oblek, ohrani planet, Hrana ni za tjavendan, Reciklirana kuharija, Mlekastično! Izberem domače, Mlekastično – svetovni dan mleka, Mladi poročevalci za okolje, Odpadkom dajemo novo življenje, Ekobranje za ekoživljenje. Predstavljena je ekološka pismenost, ki smo jo vključili v projekte, ter metode in oblike dela. Z izvedbo projektov smo bili zadovoljni, saj so dijaki kljub razmeram, ki so od njih zahtevale več samostojnega dela, izkazali zanimanje za sodelovanje in so s svojimi prispevki popestrili šolsko leto ter poglobili svoje zavedanje o pomenu trajnostno oblikovanega življenjskega sloga.

KLJUČNE BESEDE: pouk na daljavo, projekti, Ekošola, ekološka pismenost.

ECO-SCHOOL PROJECTS PREFORMED REMOTELY

ABSTRACT

The 2020-2021 school year posed challenges for the participants in educational processes. Pupils, high school students and students as well as pedagogical workers adapted to the circumstances at every level of the educational process. We have met with the implementation of distance learning for the first time in the spring of 2020, so we were better prepared for the lessons in the fall. Carrying out year-round projects required from us more ingenuity in the field of long distance working. In this article, I will present how we implemented eco-school projects remotely in the past school year: *Ne zavrzi oblek, Ohrani planet, Hrana ni za tjavendan, Reciklirana kuharija, Mlekastično! Izberem domače, Mlekastično – svetovni dan mleka, Mladi poročevalci za okolje, Odpadkom dajemo novo življenje, Ekobranje za ekoživljenje*. We were satisfied with the implementation of the projects, as the students were able to show interest in cooperating and enriched the school year with their contributions, despite the conditions that required them to work independently.

KEYWORDS: distance learning, projects, Eco-school, ecological literacy.

»KORONA EKOLOGIJA«

POVZETEK

V času stalne ogroženosti s strani okužbe s korona virusom opazamo tudi porast količine odpadkov. Med njimi pristanejo uporabljene maske, rokavice, zaščitna oprema zdravstvenega osebja pa tudi material za testiranje. V zvezi s tem je potrebno razmisliti o vplivu na okolje, ki mora vso to maso odpadkov ustrezno sprejeti, predelati in vse to s čim manj škode. Tukaj pa so še razkužila, ki na vsakem koraku vabijo k uporabi, oziroma je le-ta celo obvezna. Vendarle pa so razkužila lahko tudi škodljiva, saj vplivajo na bakterije, ki so v okolju naravno prisotne. Na šoli smo si zadali nalogo osveščanja o opisani problematiki poseganja v okolje in naše zdravje. Namestili smo posebne koše za odmetavanje odsluženih mask in dijake zelo aktivno pozivali k odmetavanju mask ločeno od ostalih odpadkov, v te posebne koše. Spremljali smo količino dnevno nastalih odpadkov pri samotestiranju ter preračunali količine na tedensko in mesečno raven. Če vse skupaj razširimo na vse srednje šole v regiji, so številke že kar visoke. Iz bolnišnice smo pridobili podatek o odpadnem materialu pri dnevni oskrbi enega covid bolnika. Količina, pomnožena s številom bolnikov, seže v nebo. Ukvarjali smo se z iskanjem načinov kako bi, zmanjšali število odpadkov. Kot doprinos k stroki verjamem, da smo naredili pomemben korak naprej v smeri ozaveščanja mladine o količini odpadkov, ki jih pridelamo s tem, ko varujemo svoje zdravje in življenje pred okužbo, hkrati pa povečali skrb mladih za varovanje okolja, s tem, da so začeli res dosledno ločeno odmetavati maske in ustrezno zbirati odpadli material samotestiranja.

KLJUČNE BESEDE: odpadki, korona, ogroženost, skrb za okolje in zdravje.

»CORONA ECOLOGY«

ABSTRACT

Under constant threat of infection by the coronavirus, we see an increase in the amount of waste, which includes used masks, gloves, protective equipment of medical staff, as well as test material. Under the circumstances, it is necessary to consider the impact on the environment, which is again faced with the requirement to properly receive, process and deal with this mass of waste without damage. Then there are disinfectants, which invite us to use them at every step or their use is even mandatory. However, disinfectants can be harmful, too, as they affect bacteria that are naturally present in the environment. Their excessive use can lead to skin ulcers, i.e. serious skin damage. At our school, we have set ourselves the task of raising awareness of the described problem of interfering with the environment and our health. We monitored the amount of daily waste generated during self-testing, and we recalculated the quantities on a weekly and monthly basis. If we apply the same data to all secondary schools in Slovenia, the numbers are already quite high. We obtained data from the hospital about waste material produced by a daily care of one Covid patient. Multiplied by the number of patients, the amount is sky-high. We were looking for ways to reduce the amount of waste wherever possible. As a contribution to their education, I believe that we have taken an important step forward in raising the awareness of young people about the amount of waste we produce by protecting our health and lives from infection while increasing young people's concern for the environment.

KEYWORDS: waste, coronavirus, endangerment, care for the environment and health.

EKOLOŠKO OZAVEŠČANJE OB IZDELAVI MATEMATIČNIH IGER V 1. RAZREDU OSNOVNE ŠOLE

POVZETEK

S pogovori o ekoloških vsebinah in z uporabo različnega odpadnega materiala pri pouku lahko pri učencih spodbujamo njihovo odgovornost do naravnega okolja. Eden izmed načinov za doseganje tega cilja je lahko tudi izdelava didaktičnih iger. V prispevku želim predstaviti konkretne matematične igre, ki smo jih z učenci 1. razreda ustvarili pri pouku iz različnega odpadnega materiala. Pri izdelavi matematičnih iger so bili učenci vključeni že v samo načrtovanje pouka, nato pa še v izvedbo. To se je izkazalo za zelo učinkovito učno metodo, s katero smo usvajali učne cilje, kot so pridobivanje številskih predstav, spoznavanje matematičnih pojmov, računanje in orientiranje. S pogostim vključevanjem učencev v načrtovanje pouka in učenjem preko didaktičnih iger pri učencih spodbujamo njihove kognitivne, motorične ter socialne spretnosti. S pogostim recikliranjem in pogovori o ekoloških vsebinah v pedagoški praksi pa krepimo ekološko ozaveščenost otrok. Njihova skrb za okolje se v vsakodnevni praksi odraža v njihovih dejanjih kot so recikliranje, ločevanje odpadkov, varčevanje z vodo in elektriko, sajenje rastlin, skrb za živali in čist zrak.

KLJUČNE BESEDE: ekološko ozaveščanje, odpadni material, matematične igre, osnovna šola, učenci prvega razreda.

ECOLOGICAL AWARENESS WITH PRODUCTION OF MATHEMATICAL GAMES IN THE FIRST GRADE OF ELEMENTARY SCHOOL

ABSTRACT

By talking about ecological contents and using different waste materials in the classroom, we can encourage students to be responsible for the natural environment. One of the ways to achieve this goal can be to make didactic games. In this article, I would like to present concrete mathematical games that we created with first-grade students in classroom from different waste materials. With the production of mathematical games, students were involved in the lessons planning, and then in the implementation. This has proven to be a very effective learning method with which we have mastered learning objectives such as acquiring numerical representations, learning mathematical concepts, arithmetic and orientation. By frequently involving students in lesson planning and learning through didactic games, we encourage students' cognitive, motor and social skills. Frequent recycling and conversations about ecological content in pedagogical practice strengthens the ecological awareness of children. Their care for the environment reflects in their daily practice in their actions such as recycling, waste separation, saving water and electricity, planting plants, caring for animals and clean air.

KEYWORDS: ecological awareness, waste material, mathematical games, primary school, first-grade students.

EKOLOŠKE VSEBINE SKOZI DOMIŠLJIJSKI SVET NAŠE DEDIŠČINE

POVZETEK

Učencem sem želela približati odpadni material iz papirja in nove tehnike obdelave. Namen projekta je bil razvijanje ustvarjalnosti, natančnosti, ročnih spretnosti, potrpežljivost, izkustvenega in sodelovalnega učenja. S projektnim učnim delom pri tehniških dnevih omogočamo vsakemu učencu, da je aktiven. Na ta način si razvijajo svoje sposobnosti, razvijajo pozitivne osebnostne lastnosti ter ob delu in svojimi izdelki gradijo pozitivno samopodobo. Postopoma tako pridobivajo delovne navade, ki so koristne pri izvajanju drugih nalog, tudi učenja. Skozi projekt so se učenci seznanili z materialom, njegovimi lastnostmi in uporabnostjo, delovne postopke in orodja. V obliki tehniškega dne smo iz odpadne kartonske embalaže izdelali gradove, ki so bili sestavni del projekta o pravljicah. Projekt je sestavljen iz opisa projekta, makro in mikro priprave ter izdelave gradov. Učenci so z zbiranjem odpadnih škatel in samostojno izdelavo lepila za kaširanje razvijali pozitiven odnos do rabe odpadnega materiala in krepili zavest o ohranjanju našega planeta.

KLJUČNE BESEDE: projektno učno delo, tehniški dnevi, odpadna embalaža, sodelovalno učenje, makro in mikro priprava.

ECOLOGICAL CONTENT THROUGH THE IMAGINARY WORLD OF OUR HERITAGE

ABSTRACT

My aim was to promote waste paper material and new techniques of its treatment to the children. The purpose of the project was the development of creativity, accuracy, manual skills, patience, experiential and team learning. Through project learning on technical days we enable each pupil to be active in the process. Thus developing their skills, positive personal characteristics and through work and own products build their positive self-image. Gradually they also develop working habits, which are useful at the execution of other tasks, as well as learning. Through the project the pupils got acquainted with the material, its characteristics and usability, working procedure and tools. Using waste paper material, on so called technical day, we made fairy castles, which were an essential part of the project on fairytales. The project consists of project description, macro and micro preparation and the making of the castles. The pupils developed positive attitudes towards recycling and thus strengthened their consciousness about preserving our planet through the collecting of wastepaper boxes and the making of papier-mâché pulp glue.

KEYWORDS: project learning, technical days, waste packaging, team learning, macro and micro preparatio.

MEDGENERACIJSKO OBDELOVANJE POLJA NA EKOLOŠKI NAČIN

POVZETEK

Odnos posameznika do okolja je stvar vzgoje. Začne se doma in nadaljuje v vrtcu in šoli. Strokovni delavci v vzgoji in izobraževanju smo pomemben člen pri vzgajanju ekološko ozaveščenih otrok. V prispevku predstavljam medgeneracijsko obdelovanje polja na ekološki način. S tem načinom skrbimo za našo naravo in njeno ohranjanje. Medgeneracijsko sodelovanje je potreba sodobnih družb, ki duševno in socialno krepi starejše ljudi in hkrati krepi vrednote mlajših generacij. Predstavljen primer prakse omogoča otrokom izkustveno učenje ekoloških vsebin na njim prijeten, zabaven način. Glavni cilj kvalitativne metode raziskave je otrokom predstaviti in razumeti pomen ekološkega kmetovanja. Raziskovanje je potekalo tekom celotnega trajanja projekta in zajemalo od 20 do 30 aktivno vključenih udeležencev. Ugotovili smo, da je način medgeneracijskega ekološkega kmetovanja odličen način izkustvenega, ekološkega učenja otrok. Z načinom dela smo doprinesli k večjemu interesu otrok za ekološko kmetovanje. Predstavljena oblika dela bi lahko postala del obveznega vzgojno-izobraževalnega sistema.

KLJUČNE BESEDE: otroci, ekologija, ekološko kmetovanje, medgeneracijsko učenje.

INTERGENERATIONAL FIELD TREATMENT IN AN ECOLOGICAL WAY

ABSTRACT

An individual's attitude towards the environment is a matter of upbringing. It starts at home and continues in kindergarten and school. Professionals in education are an important link in the education of ecologically aware children. In article, we present a form of intergenerational field cultivation in an ecological way. In this way we take care of our nature and its preservation. Intergenerational cooperation is a need of modern societies, which mentally and socially strengthens older people and at the same time strengthens the values of younger generations. The presented example of practice enables children to experientially learn about organic content in fun and pleasant way. The main goal of the qualitative research method is to present and understand the importance of organic farming to children. The research took place during the entire duration of the project and included from 20 to 30 actively involved participants. We found that the method of intergenerational organic farming is a great way of experiential, organic learning of children. Through the way we work, we have contributed to a greater interest of children in organic farming. The presented form of work could become part of the compulsory educational system.

KEYWORDS: children, ecology, organic farming, intergenerational learning.

UTOPIČNE RAZSEŽNOSTI EKOFILOZOFSKIH VIZIJ ČLOVEKOVEGA SOŽITJA Z NARAVO

POVZETEK

Prispevek razpravlja o utopičnem snovanju novih modelov človekovega sožitja z naravo v ekofilozofiji in opozarja na nujnost iskanja alternativnih modelov bivanja v svetu, ki stoji na robu ekološke katastrofe. Avtor izhaja iz prepričanja, da ima izobraževalni sistem odločilno vlogo pri oblikovanju ekološke zavesti, pomembnost filozofske edukacije pri širjenju ekološke zavesti pa vidi zlasti v prebujanju utopične domišljije pri učencih in krepitvi dejavnega upanja na uresničitev socialno in ekološko pravičnega sveta. Še posebej se posveča utopičnim razsežnostim sodobne ekofilozofske misli in eksplicira nekatere temeljne ekofilozofske pojme in paradigme (globinska ekologija, nova ekokozmologija Henryka Skolimowskega); v grobih obrisih predstavlja tudi odnos med ekološkimi in tehnološkimi utopijami. Strokovna izvirnost razprave je v avtorjevem prizadevanju, da bi vprašanje o ekološki zavesti in ekološki edukaciji postavil v širši okvir problematike utopičnega upanja, njen filozofski *novum* pa je v predlaganem slogu filozofiranja o okoljski problematiki skozi prizmo utopičnega upanja in utopije. Utopično upanje, ki izhaja iz potrebe po preseganju obstoječega, je namreč neločljivo povezano z eno človekovih najglobljih in najbolj iskrenih želja – z željo po polnem, radostnem in vedrem življenju v neodtujenem svetu kot domu (*oikos*), v katerem je izkoreninjeno zlo, vsaj tisto, ki ga povzroča človek sam, dobro pa je v njem maksimalno pomnoženo. Prizadevanje za takšen svet bi moralo biti eden izmed najpomembnejših ciljev izobraževanja.

KLJUČNE BESEDE: utopija, upanje, ekofilozofija, Henryk Skolimowski, izobraževanje.

UTOPIAN DIMENSIONS OF ECOPHILOSOPHICAL VISIONS OF HUMAN COEXISTENCE WITH NATURE

ABSTRACT

The article discusses the utopian development of new models of human coexistence with nature in ecophilosophy and draws attention to the need to find alternative models of living in a world on the brink of ecological catastrophe. The author is convinced that the education system plays a decisive role in shaping ecological consciousness; he sees the role of philosophical education in spreading ecological consciousness, especially in awakening utopian imagination in students and active hope for social and ecological justice. He pays special attention to the utopian dimensions of contemporary ecophilosophical thought. The article explains some basic concepts and paradigms of ecophilosophy (deep ecology and the new ecocosmology of Henryk Skolimowski); the article also provides a rough outline of the relationship between ecological and technological utopias. The professional originality of the discussion lies in the author's effort to place the issue of ecological consciousness and ecological education in a broader context of the issue of utopian hope. The philosophical *novum* of the article is in the proposed new style of philosophizing on environmental issues through the prism of utopian hope and utopia. Utopian hope stems from a need to surpass that which exists and is inextricably linked to one of the deepest and most sincere human desires: the desire for a fulfilling, joyful and serene life in a non-alienated world as a home (*oikos*) in which evil – at least that caused by man himself – has been eradicated, while the good in the world is multiplied to the greatest possible extent. Striving for such a world should be one of the most important goals of education.

KEYWORDS: utopia, hope, ecophilosophy, Henryk Skolimowski, education.

PRIHODNOST BLAGOSTANJA NARAVE LEŽI V ROKAH NAŠIH OTROK

POVZETEK

Razmere na naši Zemlji postajajo vedno bolj toksične. Toda le zavedanje tega je premalo. Da bi otroci naravo razumeli in jo sprejeli, jo morajo raziskovati z vsemi čutili. Predstavljen je primer dobre prakse, kako otrokom naravo približati. Cilj raziskovalnega tabora Ormoške lagune je, skozi vrsto različnih dejavnosti otrokom ponuditi izkušnjo pristnega sožitja z naravo. Hkrati otroci spoznajo, da je naravni rezervat dokaz, da se lahko na območju nekoč odpadnih voda razvije ekološko pomembno območje. Raziskovalni tabor razvija zavedanje, da je biotska pestrost izjemno pomembna za naš obstanek, krepi ekološko zavest, vzbuja ljubezen do narave. Rezultati so dolgoročni, saj kdor ima naravo rad, bo naravo tudi zaščitil.

KLJUČNE BESEDE: raziskovalni tabor, Ormoške lagune, ekološka zavest.

THE FUTURE OF NATURAL WELFARE LIES WITHIN HANDS OF OUR CHILDREN

ABSTRACT

The natural conditions on our Earth are getting increasingly more toxic. However, solely realising that is not enough. In order for children to understand the nature and consequently accept it, they have to explore it using all their senses. Hereby, a good practice example on how to introduce the nature to children is being presented. The goal of the Ormož Basins Research Camp is to enrich the children with an authentic experience of coexisting with nature through a variety of different activities. Similarly, the children are shown how the reserve itself stands as a proof that from an ex-waste water management zone, an important natural protected area can evolve. The Research Camp thus, promotes the awareness that biodiversity is of vital importance for our own survival, strengthens ecological conciseness and invokes love towards nature. The results are therefore long-lasting, since whoever loves the Nature will also be willing to protect the Nature.

KEYWORDS: Research Camp, Ormož Basins, Ecological Conciseness.

EKOLOŠKO IN TRAJNOSTNO RAZMIŠLJANJE PO NEMŠKO

POVZETEK

Okoljsko pomembne in ekološke teme posegajo praktično na vsa področja življenja, od pridobivanja energije do ločevanja odpadkov in trošenja v najširšem smislu. Tako je vsak izmed nas del okoljske problematike, a hkrati tudi del njenih rešitev. Ker cilj poučevanja tujega jezika ni le krepitev jezikovne kompetence in obravnavanje (kroskurikularnih) vsebin per se, ampak želi pri dijakih razvijati tudi družbeno relevantne kompetence v tujem jeziku, je vsekakor prav, da se dijake tudi pri nemščini kot drugem tujem jeziku spodbuja k ekološkemu in trajnostnemu razmišljanju. Pričujoči prispevek predstavlja primer dobre prakse pri pouku nemščine na gimnaziji. V prispevku so predstavljene izbrane okoljske vsebine in metodološko raznolike dejavnosti v učnem procesu, preko katerih dijaki 3. letnika, ki se učijo nemščine kot drugi tuji jezik v nadaljevalnem modulu, krepijo vse štiri jezikovne spretnosti in hkrati kritično vrednotijo svoje (potrošniške) navade in razvade in razmišljajo o svojem osebni prispevku k ohranjanju okolja. Izbrane aktualne vsebine in opisane dejavnosti so se izkazale za učinkovite, saj so dijaki v učnem procesu vseskozi zelo motivirano sodelovali. S svojimi izdelki in idejami so dokazali, da so okoljsko ozaveščeni in da razmišljajo trajnostno. Obravnavane vsebine smo smiselno postavili še v širši kontekst in jih povezali z aktivnostmi na šoli.

KLJUČNE BESEDE: okoljsko ozaveščanje, osebni prispevek k ohranjanju okolja, gimnazija, nemščina.

THINKING IN GERMAN ABOUT ECOLOGY AND SUSTAINABLE DEVELOPMENT

ABSTRACT

Environmentally important and ecological topics encompass all areas of life, from producing energy to separating garbage, to spending and consuming in the broadest sense. Each one of us, therefore, is part of environmental problems and each one of us is part of the solutions to those problems. The goal of teaching a foreign language is not only to improve language competence and to deal (in cross-curricular terms) with content; it is also to help students develop socially relevant competences in the foreign language, which means that it makes sense to encourage also students of German as a foreign language to think in terms of ecology and sustainable development. This paper presents an example of good practice in teaching German at the high school level. The article presents selected environment-related content and methodologically diverse activities in the learning process, through which third-year students of German (in the continuing or advanced module) strengthen all four language skills while critically evaluating their good and bad consumer habits. They also reflect on their personal contribution to preserving the environment. The selected content and the described activities proved to be effective, as the students remained highly motivated throughout their participation in the learning process. Their products and ideas showed that they are environmentally aware and that they think in terms of sustainability. We cogently placed the discussed topics in a broader context and linked them to school activities.

KEYWORDS: environmental awareness, personal contribution to environmental protection, high school, German as a foreign language.

OBRAVNAVANJE EKOLOŠKIH VSEBIN PRI POUKU SLOVENŠČINE V SREDNJIH ŠOLAH

POVZETEK

Že tri desetletja poučujem slovenščino v srednjem strokovnem izobraževanju. Cilji književnega pouka so med drugim razvijati medkulturno in socialno zmožnost, kritična refleksija obravnavanih literarnih del pa prispeva k kritičnemu razmišljanju in k učenju učenja. Javne vzgojno-izobraževalne institucije imamo pomembno vlogo pri okoljskem ozaveščanju mladih; pri naravoslovnih predmetih je poudarek na spoznavnih komponentah, pri branju literarnih del pa vključujemo pri okoljski vzgoji tudi čustveno kompetenco. Preučevali smo, kako vključiti okoljsko vzgojo v pouk književnosti z literarnoestetskim branjem, s katerim lahko dosežemo pozitiven odnos dijakov do narave, spodbujamo pa predvsem kritično razmišljanje, ki ga dijaki izražajo v poročanem govoru o prebranem delu ali v kreativnem pisanju. Cilj strokovnega članka je s pomočjo teoretskih izhodišč ugotoviti pomen branja pri naslavljanju ekoloških tematik ter ali dijaki v tem prepoznajo smiselnost. Predstavili smo primer dobre prakse ustvarjanja šolskega glasila, z anketo pa smo preverjali, ali dijaki izkazujejo interes za okoljske problematike, ali se jim zdi smiselno le-te vključevati v pouk slovenščine, kakšno vrednost prepoznajo v branju in morebiten interes po aktivnejšem vključevanju v bralni krožek, ki bi naslavljal tudi ekološke vsebine. Ugotovljamo, da mladi izražajo potrebo po naslavljanju tovrstnih tematik tudi pri pouku slovenščine z branjem literarnih del. Branje jim pa omogoča razvijanje lastne kritične miselnosti in iskanje morebitnih rešitev za izzive sodobnega časa, omogoča pa tudi pridobivanje znanja ter vrednotenje lastnih čustev glede naučenega.

KLJUČNE BESEDE: književni pouk, srednje strokovno izobraževanje, okoljska vzgoja, literarnoestetsko branje, kreativno razmišljanje.

DISCUSSION OF ECOLOGICAL CONTENT IN SUBJECT SLOVENIAN LANGUAGE IN UPPER SECONDARY EDUCATION

ABSTRACT

I have been teaching Slovenian language in technical upper secondary education for three decades. The goals of literary education are, among other things, to develop intercultural and social ability, and critical reflection on the literary works discussed contributes to critical thinking and learning to learn. Public educational institutions play an important role in raising environmental awareness among young people; in science subjects, the emphasis is on cognitive competencies, and in reading literary works, we also include emotional competence in environmental education. We will study how to include environmental education in the teaching of literature through literary-aesthetic reading, which can achieve a positive attitude of students towards nature, and encourage critical thinking, which students express in reported speech about reading work or creative writing. Using the theoretical starting points the article aims to determine the importance of reading in addressing ecological topics and to examine whether students recognize the meaning in it. An example of a good practice in creating a school newsletter was presented and the survey asked the student's interest in environmental issues, their opinion on if it makes sense to include these issues in the subject of Slovenian language, the value they recognize in reading and a possible interest in more active involvement in reading club that would also address ecological content. It was concluded that young people express the need to address aforementioned topics, including in the class of Slovenian language by reading literary works. Reading gives them a chance to develop their own critical thinking and to find possible solutions to the challenges of modern times, but it also enables them to acquire knowledge and evaluate their own feelings about what they have learned.

KEYWORDS: literary instruction, secondary vocational education, environmental education, literary-aesthetic reading, creative thinking.

BIVANJE V SODOBNEM SVETU - PROBLEM PLASTIKE

POVZETEK

Obravnavanje okoljskih tem je v prvi vrsti vezano na osveščanje. Predvsem mladi so ključna ciljna skupina, saj je njihova prihodnost, zaradi hiperprodukcije, pretiranega in brezglavega potrošništva, na veliki preizkušnji. V prispevku se osredotočam na predstavitev načina osveščanja dijakov srednje šole pri strokovnem predmetu bivalna kultura. Ta v svojem učnem načrtu vključuje spoznavanje in načrtovanje grajenega okolja, zavedajoč se, da vsaka intervencija v prostor nehote okolje tudi obremeni. S kratko nalogo v okviru razpoložljivih ur in materialnih sredstev, smo skušali ozavestiti problematiko kopičenja odpadne plastike, na oblikovalski način. Iz odpadne embalaže, ki se je v domačem gospodinjstvu nabrala v tednu pouka na daljavo, smo izdelali nakit. Izdelke bomo na šoli predstavili v okviru dneva zemlje, 22. aprila 2022.

KLJUČNE BESEDE: plastika, ponovna uporaba, oblikovanje.

LIVING IN THE MODERN WORLD - THE PROBLEM OF PLASTIC

ABSTRACT

Environmental issues in many cases deal with awareness. Young people in particular are an important target group, because their future is completely at stake due to overproduction and excessive and mindless consumption. In this paper, I focus on presenting the method of raising awareness among high school students in a creative subject where they acquire knowledge about culture of living. The curriculum also includes the basics of architecture, recognizing that any intervention in space unintentionally pollutes the environment. With a short assignment within the available hours and material resources, we tried to raise awareness of the problem of plastic waste accumulation in a design way. We made jewelry from packaging waste that had accumulated in the home household during the week of distance learning. The design concepts will be presented at the school as part of Earth Day on April 22, 2022.

KEYWORDS: plastic, reuse, design.

PREGRETA CELINA – GLOBALNO SEGREVANJE V EVROPI

POVZETEK

Podnebje se že od nekdaj spreminja zaradi naravnih vzrokov. Od konca 19. stoletja naprej pa je človek s svojimi dejanji močno vplival na višanje povprečne temperature Zemljinega ozračja in oceanov. Podnebne spremembe so v zadnjih desetletjih nastale neposredno ali posredno zaradi človekovih dejavnosti, ki spreminjajo sestavo zemeljskega ozračja. Spreminjanje podnebja je med največjimi izzivi našega časa, saj njegove negativne posledice spodkopavajo prizadevanja za trajnostni razvoj. Zato so podnebne spremembe in trajnostni razvoj pomemben del vzgojno-izobraževalnih ciljev predmeta geografije. V prispevku je prikazana učna ura pri pouku geografije, pri kateri so učenci spoznavali podnebne spremembe. Učno delo v 8. razredu je trajalo 2 šolski uri in je združevalo elemente direktnega učiteljevega vodenja učnega procesa ter samostojnega dela učencev. Vzgojno-izobraževalni cilji so bili usvojeni preko različnih oblik in metod dela: individualno delo, skupinsko delo, vizualizacija, razlaga, pogovor, delo z zemljevidom, s slikovnim in grafičnim materialom itd. Učenci so na primeru Evrope s pomočjo interaktivnega zemljevida *Glocal Climate Change* spoznali, za koliko so se povišale povprečne temperature v zadnje pol stoletja ter kakšen je obseg segrevanja ozračja na lokalni ravni. Preko razmišljanja o vzrokih in posledicah podnebnih sprememb so dojeli celostnost tega prostorskega vprašanja. S svojimi mini plakati na temo Biti ekološko ozaveščen so ozavestili tudi svojo vlogo v skrbi ohranjanja našega planeta ter pomen razvijanja ekološke ozaveščenosti.

KLJUČNE BESEDE: ekološka zavest, Evropa, geografija, globalno segrevanje.

OVERHEATED CONTINENT – GLOBAL WARMING IN EUROPE

ABSTRACT

The climate has always changed due to natural causes. From the end of the 19th century onwards, however, man's actions greatly influenced the rise in the average temperature of the Earth's atmosphere and oceans. In recent decades, climate change has been caused, directly or indirectly, by human activities that are changing the composition of the Earth's atmosphere. Climate change is one of the greatest challenges of our time, as its negative consequences undermine sustainable development efforts. Therefore, climate change and sustainable development are an important part of the educational goals of the subject of geography. The article presents a geography lesson, in which pupils learned about climate change. The teaching work in the 8th grade lasted for two school lessons and combined elements of direct teacher management of the learning process and independent work of pupils. Educational goals were adopted through various forms and methods of work: individual work, group work, visualization, explanation, conversation, work with a map, pictures, and graphic material, etc. Using the interactive map of *Glocal Climate Change*, pupils learned about the extent to which average temperatures have risen over the last half century and the extent of global warming at the local level. Through thinking about the causes and consequences of climate change, they understood the integrity of this spatial issue. With their mini posters on the topic of being ecologically aware, they also became aware of their role in caring for the preservation of our planet and the importance of developing ecological awareness.

KEYWORDS: ecological consciousness, Europe, geography, global warming.

OHRANJANJE PRETEKLOSTI ZA BOLJŠO PRIHODNOST

POVZETEK

V članku je predstavljen primer projektne delo pri pouku strokovnega modula likovnega izražanja v programu predšolske vzgoje. Namen projekta je osveščanje mladine o ekoloških problemih sveta zaradi prevelike potrošnje in prehitro zavrženih predmetov. Z recikliranjem starih, odpadnih predmetov ohranjamo utrip časa naših prednikov in hkrati kažemo na gospodarno in odgovorno življenje v sodobnem svetu. Stare, neuporabne kitare in lesene stole različnih dimenzij in oblik so dijaki z likovno nalogo prenovili s kreativno poslikavo. Trup akustičnih kitar so kreativno poslikali s poljubnim motivom. Stari stoli, na katerih so dijaki naslikali karikature profesorjev glasbe, so dobili ekološko, likovno in uporabno vrednost. Recikliranje v umetnosti spodbuja h gospodarnemu razmišljanju in trajnostnemu podjetništvu.

KLJUČNE BESEDE: recikliranje, stari predmeti, karikatura, ekologija.

PRESERVING PAST FOR THE FUTURE

ABSTRACT

In the article the example of project work at classes of professional module art expression is presented. The purpose of the project is educating young people about ecological problems in the world because of consuming and wasting too much. Recycling old, used things we preserve past and show economical and responsible life in the modern world. Old guitars and wooden chairs of different dimensions and shapes are renovated with creative art paintings. These objects were creatively painted with any motif. Students painted caricatures of their music teachers on them. This way the old guitars and chairs were given a new ecological, artistic and practical value. Recycling in art encourages economic thinking and sustainable entrepreneurship.

KEYWORDS: Recycling, old things, caricature, ecology.

EKONOMSKI RAZVOJ MALIH KMETIJ

POVZETEK

Še pred tremi desetletji je bila v našem kraju v Zlatoličju, pri skoraj vsaki hiši manjša kmetija. Danes je žal drugače. V vasi je 17 večjih kmetij, ki se intenzivno ukvarjajo s kmetijstvom, manjših kmetij je ostalo 10. Menimo, da slovenski kmetje vse bolj sledijo velikim korporacijam in s tem povečanjem zaslužka. Ob tem se ne vprašajo za blaginjo živali in ne nazadnje za vprašanje hrane – koliko je hrana sploh še kakovostna. Osnovni namen prispevka je tako predstaviti težave, s katerimi se srečujejo manjše kmetije. Glavni cilj prispevka pa je prikazati možnosti preživetja za manjšo kmetijo. Menimo, da bi lahko manjše kmetije preživele s specializacijo na določen pridelek/proizvod, saj bi s tem lahko ob ekološki pridelavi dosegale višjo kakovost pridelane hrane kot tudi ceno. Kot primer trajnostnega izziva majhne kmetije smo predstavili tudi možnosti za pivovarstvo, za katero smo trenutno v fazi pridobitve dopolnilne dejavnosti na kmetiji. Menimo, da rešitev trajnostnega kmetovanja ni v centraliziranem velikem kmetijstvu, ampak v decentraliziranem majhnem razpršenem kmetijstvu, kjer bi lahko pridelali prav toliko, ali pa še več hrane, kot jo pridelamo sedaj.

KLJUČNE BESEDE: majhne kmetije; hrana, ekološka pridelava.

ECONOMICAL DEVELOPMENT OF SMALL FARMS

ABSTRACT

Just thirty years ago, practically every house in our village, Zlatoličje, also had a small farm. Today, this is sadly no longer the case. The village includes 17 large farms, focused on intensive agriculture, while there are only 10 small farms left. We have determined that farmers in Slovenia are aimed towards large corporations and thus increased profit. Consequently, they put no emphasis on animal welfare and even on the food produced – particularly its quality. The basic goal of this paper is to present problems that small farms are having, while the main goal is to show the possibilities for their continued existence. We believe that smaller farms can achieve that by specializing in a specific crop/product as this, coupled with organic production, could lead to higher quality of produce as well as higher prices. As an example of good practice for sustainability, we present the option of brewing, which we are currently in the process of getting all the necessary permits at our farm. We believe that reaching the goals of sustainable farming lies not in centralized large-scale agriculture, but rather in decentralized small-scale and dispersed agriculture, where total food production would equal or even exceed the total food production today.

KEYWORDS: small farms, food, organic production.

EKO DELEGATI V ŠOLI

POVZETEK

Gimnazija Jožeta Plečnika Ljubljana v letih od 2017 do 2023 sodeluje v dveh projektih programa Erasmus+ in sicer Simul'ONU ter Bee Live. Gre za mednarodna partnerstva med šolami iz več evropskih držav. V prispevku predstavljamo in opisujemo oba projekta, katerih rdeča nit je okoljska problematika. Glavni namen projektov je globalno učenje, to pomeni usposabljanje dijakov za aktivno in globalno odgovorno državljanstvo, ki posameznika nagovarja, da postane odgovoren do svojega okolja, soljudi in družbe, v kateri živi. Mladostnike je treba ozavestiti, da je ohranjanje okolja bistveno za ohranjanje našega življenja in življenja prihodnjih generacij. Okoljski problemi pa so seveda mednarodni, zato je ključno, da izobraževanje poteka tudi znotraj mednarodnih projektov. Projekt Simul'ONU je potekal v obliki simulacije delovanja in zasedanja Organizacije združenih narodov, ki jo pripravijo in izvedejo dijaki sodelujočih gimnazij. Tema zasedanja pa je bila povezana z ekologijo in trajnostnim razvojem. Drugi projekt Bee Live pa se ukvarja z ohranjanjem biotske raznovrstnosti s posebnim poudarkom na biodiverziteti v mestih. Med tem projektom bi radi vodili naše dijake, da postanejo zavestni potrošniki, sposobni sprejeti nova vedenja in sprejemati okoljsko odgovorne odločitve. Sodelovanje v obeh projektih je prineslo vsem sodelujočim ogromno koristi. Znotraj projektov je izobraževanje vključevalo akcijsko učenje, saj smo razvijali sposobnosti dijakov za samostojno aktivnost. Krepili smo kritično mišljenje, dijaki so imeli sodelovalen in aktiven položaj. Naš pristop je bil interdisciplinaren in problemski, učne vsebine so bile podane v kontekstu realnih problemov. Poudarek je bil na izkustvenem učenju (učenje v naravi, simulacija zasedanja).

KLJUČNE BESEDE: globalno državljanstvo, biodiverziteteta, čebele, simulacija zasedanja.

ECO DELEGATES AT SCHOOL

ABSTRACT

Jože Plečnik High School Ljubljana is participating in two Erasmus + projects from 2017 to 2023, namely Simul'ONU and Bee Live. These are international partnerships between schools from several European countries. In this paper, we present and describe both projects whose common thread is environmental issues. The main purpose of the projects is global learning, which means training students for active and globally responsible citizenship, which encourages the individual to become responsible for their environment, fellow human beings and the society in which they live. Adolescents need to be made aware that preserving the environment is essential to sustaining our lives and the lives of future generations. Environmental problems are international problems, so it is crucial that education also takes place within international projects. The Simul'ONU project took the form of a simulation of the work and session of the United Nations, prepared and carried out by students from participating high schools. The topic of the session was related to ecology and sustainable development. The second Bee Live project deals with the conservation of biodiversity with a special focus on urban biodiversity. During this project, we would like to guide our students to become conscious consumers, able to adopt new behaviors and make environmentally responsible decisions. Participation in both projects has brought enormous benefits to all participants. Within the projects, the education included action learning, as we developed students' abilities for independent activity. We strengthened critical thinking, students had a collaborative and active position. Our approach was interdisciplinary and problematic, the learning content was given in the context of real problems. The emphasis was on experiential learning (learning in nature, session simulation).

KEYWORDS: global citizenship, biodiversity, bees, session simulation.

RAZISKOVALNA DEJAVNOST NA ŠOLI, POVEZANA Z EKOLOGIJO

POVZETEK

Namen prispevka je prikazati bogato raziskovalno dejavnost na II. gimnaziji Maribor in izpostaviti nekaj ekoloških projektov, ki na šoli uspešno in utečeno potekajo že nekaj let. Izpostavljene so raziskovalne naloge, ki so z multidisciplinarnega vidika povezane z ekologijo. S tem dokazujemo, da mentorji raziskovalnih nalog spodbujamo mlade, da o ekologiji poglobljeno razmišljajo in da so problemi, ki jih dijaki v raziskavah obravnavajo, skrbno izbrani, pogosto pa tudi tako zanimivi, da si zaslužijo nadaljnjo obravnavo strokovne javnosti. Izpostavljene so raziskovalne naloge, ki so na državnih srečanjih mladih raziskovalcev, ki jih organizira Zveza za tehnično kulturo Slovenije, dosegle visoke uvrstitve, kar samo potrjuje njihovo kvaliteto. Čeprav ekologija ni samostojen predmet, prispevek dokazuje, da jo lahko uspešno implementiramo v različne dejavnosti, ki na šoli potekajo.

KLJUČNE BESEDE: ekologija, kmetijstvo, turizem, trajnost, raziskovanje, razvoj.

RESEARCH ACTIVITY AT THE SCHOOL RELATED TO ECOLOGY

ABSTRACT

The purpose of this article is showing rich research activity on II. gymnasium Maribor and pinpointing some ecological projects that have been successfully and smoothly running in our school for a few years. We have highlighted the research papers that are, from a multidisciplinary aspect, connected to ecology. By doing this, as mentors, we are proving our support for the young to think about ecology from many standpoints and that all the addressed problems are chosen with care and responsibility, and often so interesting that they deserve further research by the professional public. All research papers are presented at national meetings of young researchers, which are organised by ZOTKS, a Slovenian union for technological culture and they always reach high rankings, which only confirms their quality. Even though ecology is not an independent subject, this article shows that we can successfully implement it into different activities in our school.

KEYWORDS: ecology, agriculture, tourism, durability, research, development.

POSLEDICE ZAUSTAVITVE TERMoeLEKTRARNE ŠOŠTANJ

POVZETEK

V prvem delu strokovnega prispevka smo raziskali stanje Slovenskega energetskega sistema in pomen pridobivanja energije iz obnovljivih virov energije (OVE). V drugem delu smo se osredotočili na vpliv zaustavitve termoelektrarne Šoštanj na okolje in na vprašanje, kako bo to vplivalo na energetske stanje v Sloveniji. Ugotovili smo, da je neto proizvodnja električne energije v Sloveniji 15,56 TWh (l. 2021). Od tega je delež proizvodnje nuklearne elektrarne bil 26,83 %, delež električne energije iz trdih fosilnih goriv 25,19 %, hidroelektrarne so proizvedle 30,14 % električne energije, sončne elektrarne pa le 2,19 % (0,34 TWh). Delež drugih OVE je bil 1,28 % (0,2 TWh), vetrne elektrarne pa so proizvedle 0,06 % električne energije. Zaustavitev termoelektrarne v Šoštanju bi imela tako pozitivne kot tudi negativne učinke. Pozitiven bi vsekakor bil ugoden vpliv na zdravje ljudi in na okolje, saj termoelektrarna proizvede 23,6 % vseh emisij CO₂ in 36,7 % celotnega proizvedenega SO₂ v Sloveniji. Ugotovili smo, da bi lahko energijo termoelektrarne nadomestili z bolj zelenimi elektrarnami, katerih gradnja je že v načrtu. To bi bili nov blok jedrske elektrarne v Krškem, dokončanje petih novih hidroelektrarn na spodnji Savi in novih hidroelektrarn na srednji Savi. S pridobljenimi informacijami prispevamo k stroki na način, da krepimo zavedanje mladih v šoli o tem, kako pomembna sta odnos do okolja in prehod na pridobivanje energije iz OVE, saj so razni izpusti škodljivi ne samo za okolje, ampak tudi za zdravje ljudi. V primerjavi s fosilnimi gorivi pri rabi OVE nastajajo manjše emisije toplogrednih plinov, kar prinaša pozitivne učinke na kakovost okolja.

KLJUČNE BESEDE: razogljichenje, termoelektrarna, Šoštanj, hidroelektrarne, električna energija.

SHUTTING DOWN THE ŠOŠTANJ THERMOELECTRIC PLANT AND ITS CONSEQUENCES ON THE ENVIRONMENT

ABSTRACT

In the first part of the scientific paper, we researched the state of the Slovene energy system and the importance of obtaining energy from renewable energy sources. In the second part, we focused on how shutting down the Šoštanj Thermoelectric Plant affects the environment and we asked ourselves how that would affect the energy state in Slovenia. We found that the net production of electric energy in Slovenia is 15,56 TWh (in 2021). Out of this, the share of the nuclear power plants was 26,83%, the share of electric energy out of solid fossil fuels was 25,19%, hydroelectric power plants produced 30,14% of all electric energy whereas solar power plants produced only 2,19% of it (0,34 TWh). The share of other renewable energy sources was 1,28% (0,2 TWh) and wind power plants produced 0,06% of electric energy. Shutting down the Šoštanj Thermoelectric Plant would have positive as well as negative consequences. A positive impact would be the beneficial effect on people's health and their environment since the thermoelectric plant produces 23,6% of all CO₂ emissions and 36,7% of the total SO₂ produced in Slovenia. We found that we could substitute the thermoelectric plant's produced electric energy with greener power plants whose construction is already in the plan. That would be the new block of the Krško Nuclear Power Plant, the construction of five new hydroelectric power plants on the lower Sava River and new hydroelectric power plants on the middle Sava River. Our findings are contributing to our profession by strengthening young people's awareness about the importance of the attitude towards the environment and the transition to acquiring energy from renewable energy sources because several emissions are harmful not only to the environment but also to people's health. In comparison to fossil fuels by using renewable energy sources lower emissions of greenhouse gases are being generated which has positive effects on the quality of the environment.

KEYWORDS: decarbonization, thermoelectric plant, Šoštanj, hydro-energy power plants, electric energy.

EKO TURISTIČNA UČNA POT OB PŠATI IN KAMNIŠKI BISTRICI

POVZETEK

V prispevku želimo predstaviti vidik in izvedbo eko turistične pot ob reki Pšati in Kamniški Bistrici z namenom vzpodbujanja ekološkega pristopa razvoja turizma ob aktivnem sproščanju v sobivanju z naravo. Z udeleženci smo z eko turistično učno potjo omogočili, da vsak posameznik lahko ob aktivnem kolesarjenju po učni poti doseže ekološko sobivanje in opazovanje narave. Med potjo so udeleženci s postankom v naravnem okolju opazovali vplive dejavnikov na naravno okolje ob kolesarjenju po turistični učni poti. Opazovali so vplive na prisotnost živalskega sveta ob reki, v gozdu, naselju ter ob avtocesti, da bi s tem proučili in se seznanili, kako pomembno je sobivanje z naravo in vpliv poseganja človeka v naravo. Z daljnogledi so opazovali ptice in gozdne živali. V reki Pšati in Kamniški Bistrici so merili temperaturo in raziskovali v zimskem času živeče vodne živali. Namen in cilj eko turistične poti je prikazati čimbolj naravno in ekološko sobivanje posameznika z naravo, ki ob njenem opazovanju sproščanje kot tudi aktivnost v naravi. (priloga video)

KLJUČNE BESEDE: učna pot, naravno okolje, sobivanje z naravo.

ECO TOURIST LEARNING TRAIL NEAR PŠATI AND KAMNIŠKA BISTRICA

ABSTRACT

In this paper we want to present the aspect and implementation of the eco-tourist trail along the rivers Pšata and Kamniška Bistrica to promote the ecological approach to the development of tourism while actively relaxing in coexistence with nature. With the participants, we enabled the eco-tourism learning path so that everyone can achieve ecological coexistence and nature observation while actively cycling along the learning path. During the trip, the participants, with a stop in the natural environment, observed the effects of factors on the natural environment while cycling along the tourist learning trail. They observed the effects on the presence of wildlife along the river, in the forest, in the settlement and along the highway, to study and learn about the importance of coexistence with nature and the impact of human encroachment on nature. Birds and forest animals were observed with binoculars. In the rivers Pšata and Kamniška Bistrica, the temperature was measured and aquatic animals living in the winter were investigated. The purpose and goal of the eco-tourist route is to show the most natural and ecological coexistence of an individual with nature, which, while observing it, relaxes as well as activities in nature. (Video attachment)

KEYWORDS: learning path, natural environment, coexistence with nature.

LIKOVNA RECIKLAŽA OSTANKOV GRADBENIH MATERIALOV, ODPADNE EMBALAŽE IN STARIH OBLAČIL

POVZETEK

Pomembna naloga sodobne šole je pouk, ki pri učencih spodbuja ustvarjalno mišljenje, iskanje rešitev, kreativnost in privzgaja ter krepi življenjske vrednote. Eno izmed slednjih predstavlja skrb za okolje. Posledice sodobnega načina življenja se odražajo tudi na količini odpadkov, ki vsakodnevno obremenjujejo okolje. V medgeneracijskem in medpredmetnem projektne delu smo si zadali cilj uporabe odpadnih materialov pri likovnem ustvarjanju. V projektne dejavnosti so bili vključeni osmošolci pri likovni umetnosti, učenci izbirnih predmetov obdelava gradiv – kovine in likovnega snovanja 2 ter interesne dejavnosti kiparske delavnice. Pri ustvarjanju smo uporabili ostanke gradbenih materialov, odpadno embalažo, star papir in stara oblačila. S temi materiali smo izdelali elemente za pustno dekoracijo v šolski avli, skulpturo, ki je krasila osrednje prizorišče vaške pustne povorke, in pustne maske, ki so jih učenci uporabili v pustni povorki. Rezultati projektne dela so pokazali, da lahko odpadnim materialom z likovno reciklažo spremenimo namembnost in jim dodamo novo estetsko vrednost ter tako prispevamo k zmanjšanju obremenitve okolja z odpadki.

KLJUČNE BESEDE: recikliranje, scenski elementi, pustne maske, projektno učno delo, likovna umetnost.

ART RECYCLE OF CONSTRUCTION MATERIALS RESIDUES, WASTE PACKAGING AND OLD CLOTHING

SUMMARY

An important task of a modern school is a type of an oriented lesson, which encourages creative thinking, searching for solutions, creativity and nurtures the strength of life values. One of them is concern for the environment. The consequences of the modern way of life are also reflected in the amount of waste that burdens the environment on a daily basis. In the intergenerational and interdisciplinary project work, we set ourselves the goal of using waste materials in artistic creations. The project activities included eight-graders in fine arts, pupils of elective subjects; processing of materials – metal, fine arts design 2 and extracurricular activities – the sculpture workshop. To create, we used the remains of construction materials, waste packaging old paper and old clothes. With these materials we created elements for carnival decorations in the school lobby, a sculpture that adorned the central stage of the village carnival parade and carnival masks used by pupils in the carnival parade. The results of the project work have shown, that we can change the purpose of waste materials through art recycling and add a new aesthetic value to them, thus contributing to reduction the burden of the environment with waste.

KEYWORDS: recycling, stage elements, carnival masks, project teaching work, fine art.

NE ZAVRZI, RAJE PONOVRNO UPORABI

POVZETEK

Človeštvo na našem planetu se iz leta v leto sooča s hujšimi spremembami, kar je posledica pretiranega poseganja človeka v naravo. Zaradi tega je skrb za okolje postala ena ključnih tem pri pogovoru za boljši jutri, skladno s tem se povečuje nabor okoljevarstvenih vprašanj in problemov. Za ustrezno ukrepanje, moramo imeti potrebna znanja, katera odrasli ljudje zlahka pridobimo preko medijev, izobraževanj ali literature. Otroci pa tovrstno zavest razvijajo preko vzgoje, tako doma kot v osnovni šoli. Spodbudno je, da četrtošolci dosegajo precej visoko plat ozaveščenosti v njihovi starostni skupini, je pa to potrebno prenašati še v prakso. Pouk likovne umetnosti je področje, ki ponuja širok spekter učenja in ozaveščanja o ponovni uporabi odpadnih materialov. Skozi likovno dejavnost lahko otrokom predstavimo ekološko problematiko in jih na tak način spodbujamo h kritičnemu mišljenju ter lastnemu ukrepanju za varnejšo okoljsko prihodnost. Prispevek predstavlja primere konkretne uporabe odpadnih materialov za nove likovne izdelke v 4. razredu, cilj take likovne naloge pa je zmanjšana potrošnja pri nakupu likovnih pripomočkov. Cilj prispevka je poudariti pomen ozaveščenosti učencev o skrbi za okolje ter odgovornemu ravnanju do narave.

KLJUČNE BESEDE: odpadni materiali, recikliranje, ekološka ozaveščenost otrok, skrb za okolje.

DO NOT DISPOSE, BETTER USE AGAIN

ABSTRACT

Mankind on our planet is facing serious changes from year to year, as a result of excessive human encroachment on nature. As a result, caring for the environment has become one of the key topics in the conversation for a better tomorrow, and the range of environmental issues and problems is growing accordingly. For appropriate action, we need to have the necessary knowledge that adults can easily acquire through the media, education or literature. However, children develop this kind of awareness through education, both at home and in primary school. It is encouraging that fourth-graders achieve a fairly high level of awareness in their age group, but this needs to be put into practice. Fine arts education is an area that offers a wide range of learning and awareness on the reuse of waste materials. Through art activities, we can introduce children to ecological issues and in this way encourage them to think critically and take action for a safer environmental future. The paper presents examples of concrete use of waste materials for new art products in the 4th grade, and the goal of such an art task is to reduce consumption when buying art accessories. The aim of this paper is to emphasize the importance of students' awareness of caring for the environment and responsible behavior towards nature.

KEYWORDS: waste materials, recycling, ecological awareness of children, care for the environment.

RAZGRADNJA NAPRAV IN LOČEVANJE ODPADKOV PRI PRAKTIČNEM POUKU ELEKTRO SMERI

POVZETEK

Pri praktičnem pouku v šoli, dostikrat naletimo na naprave, ki se več ne dajo popraviti. Zato smo se odločili, da se bomo lotili razgradnje teh naprav. Napravo razmontiramo in dele ločimo po vrstah odpadkov (plastika, baker, elektronski sklopi,..) vsak odpadek ima svojo posebno škatlo v katero jih shranimo. Ker smo jih shranili v škatle jih tudi pozneje ko jih spet pri delu uporabimo lažje najdemo. Dijakom se pri tem uri iz varčevanju z resursi (skrbno izbirajo dolžine žice pri izdelavi inštalacij, večkrat uporabijo enake elemente v inštalacijah,...) uporabljajo ločevanju odpadkov in v naprej razmišljajo kako bodo nalogo opravili (določeni deli elektronskih naprav še delajo oni jih lahko znova uporabijo kot del nove naloge), da pri tem uporabijo čim manj materiala in še tega, da čim več vzamejo v košu za reciklirani material.

KLJUČNE BESEDE: razgradnja, ločevanje, ponovna uporaba.

DECOMPOSITION OF DEVICES AND SEPARATION OF WASTE IN PRACTICAL EDUCATION OF ELECTRICAL DIRECTIONS

ABSTRACT

In practical lessons at school, we often come across devices that can no longer be repaired. So we decided to start dismantling these devices. We disassemble the device and separate the parts according to the types of waste (plastic, copper, electronic assemblies, ..). Each waste has its own special box in which we store them. Because we stored them in boxes, it is easier to find them later when we use them again at work. Students are taught resource saving (carefully choose the lengths of the wire when making installations, use the same elements in installations several times, uporabljajo) use waste separation and think in advance how they will perform the task (certain parts of electronic devices are still working, they can use them again as part of a new task) to use as little material as possible and to take as much as possible in the recycled bin

KEYWORDS: decomposition, separation, reuse.

DIDAKTIČNA IGRA »OČISTIMO RIBNIK« KOT UČNI PRIPOMOČEK V MODULU BIVANJE IN OKOLJE

POVZETEK

Učitelji največkrat želimo učencem na čim bolj zabaven in učinkovit način predstaviti določeno vsebino. Pri urah gospodinjstva v šestem razredu, v enakovrednem izobrazbenem standardu, v modulu bivanje in okolje, skupaj z učenci obravnavamo teme odpadkov, posledic onesnaževanja z odpadki in razvrščanja odpadkov. Da bi učenci čim bolj usvojili zanje sem za namen pouka izdelala didaktično igro Očistimo ribnik. Igra vsebuje zelo veliko slik, s katerimi si, še posebej učenci z govorno jezikovno motnjo, lahko lažje in bolj nazorno predstavljajo določene pojme ter izhajajo iz konkretnega k abstraktnemu ter nenazadnje posredno krepijo tudi svojo fino motoriko. Učenci so s pomočjo igre lastno aktivni, učijo se opazovanja in pravilnega razvrščanja, utrjujejo učno snov, krepijo medsebojno sodelovanje in odnose. Igra omogoča obogatitev vsebine, ki pa prispeva k boljšemu razumevanju ter nenazadnje tudi zabavnemu učenju učencev. Prispevek predstavlja novo idejo za ponavljanje že obravnavane učne snovi v modulu bivanje in okolje v enakovrednem izobrazbenem standardu v šestem razredu osnovnošolskega izobraževanja. Namen učne aktivnosti je bil dosežen. Učenci so med igro utrjevali in krepili svoje znanje o odpadkih. Učenci med šolsko uro niso imeli občutka učenja, saj so se zelo zabavali in sproščeno igrali.

KLJUČNE BESEDE: didaktična igra, enakovredni izobrazbeni standard, govorno jezikovna motnja, utrjevanje znanja, odpadki.

DIDACTIC BOARD GAME »LET'S CLEAN THE POND« AS A TEACHING AID IN THE MODULE LIVING AND ENVIRONMENT

ABSTRACT

In most cases the teachers want to present a topic to the pupils in the most exciting and effective way possible. In sixth grade Home economics classes in equal educational standard we deal with the topic of waste, the consequences of pollution and recycling in the module named "Living and environment". For the students to comprehend the topic as much as possible, I devised a didactic board game "Let's clean the pond". The board game includes lots of pictures, which makes it easier for the pupils, especially those with speech impairments, to imagine certain concepts more explicitly. It also enables them to move from concrete to abstract and to strengthen their fine motoric skills. With the help of the game, the pupils are active, they learn to observe and group things correctly, they revise and also strengthen cooperation and relationships. The board game enables topic enrichment, which adds to a better understanding and also to making learning more fun. This article presents a new idea of how to revise an already known content in the module Living and environment classes in the sixth class of primary school of equal educational standard. The aim of the lesson was achieved. The pupils were revising and strengthening their knowledge on waste while playing the game. During the lesson the pupils did not feel like they were learning, because they had a lot of fun and were playing in a very relaxed way.

KEYWORDS: equal educational standard, revision, didactic board game, waste, speech impairments.

SONČNA ELEKTRARNA ZA LASTNO RABO PROIZVEDENE ELEKTRIČNE ENERGIJE

POVZETEK

Prehod s klasičnih virov energije na alternativne, obnovljive vire energije je neizogiben. Eden izmed lažje dostopnih obnovljivih virov energije je sončna energija, sončna elektrarna pa je sistem, ki to energijo pretvori v električno energijo. V strokovnem prispevku je na kratko opisano stanje na področju proizvodnje električne energije iz sončnih elektrarn v Sloveniji in zakonodaja, ki trenutno velja in se neposredno nanaša na spodbujanje rabe obnovljivih virov energije. Večinski del prispevka obsega postopek postavitve in monitoring obratovanja realne sončne elektrarne. Eden izmed poglavitnih ciljev prispevka je primerjava s pomočjo programskega orodja simulirane proizvodnje električne energije te elektrarne z dejansko izmerjeno na sončni elektrarni. Na podlagi določenega odstopanja simulacije in realnih meritev je v prispevku ustrezno korigirana amortizacijska doba sončne elektrarne, ki jo je izračunal investitor sončne elektrarne ob postavitvi, čeprav bo za končen finančni izkaz potrebno počakati še nekaj let.

KLJUČNE BESEDE: električna energija, klasični viri energije, obnovljivi viri energije, sončna elektrarna.

SOLAR POWER PLANTS FOR A PROPER USAGE OF PRODUCED ELECTRICITY

ABSTRACT

Transition from classical sources of energy to alternative, renewable energy sources is inevitable. One of the easiest available sources is sun energy and the solar power plant is a system, which transforms that energy to electric energy. In scientific article there is a briefly described production of electric energy with the sun power plants in Slovenia and a legislation which is currently valid and promotes the usage of renewable sources of energy. Majority of article focuses on a procedure of setting and monitoring the work of the sun power plant. One of the biggest goals of the article is a comparison between software simulated power plant and the real one. Depending on a deviation between theoretical and real measurements we can see in this article the corrected amortisation period of the sun power plant, calculated by an investor at the time of setting up power plant despite the fact it must be waited a few years before final finances could be seen.

KEYWORDS: electric energy, classical sources of energy, renewable sources of energy, sun power plant.

PRIMERI UČNIH UR OKOLJSKE VZGOJE IN IZDELAVA DIDAKTIČNIH IGER IZ ODPADNEGA MATERIALA PRI POUKU ANGLEŠČINE V 3. RAZREDU OSNOVNE ŠOLE

POVZETEK

Človek je s svojim nepremišljenim načinom življenja dodobra načel naravne dobrine. Vsakdanji hitri tempo ga v obilici opravkov sili v osredotočenost na to, kako se prebiti iz dneva v dan, le malo pa ima časa in priložnosti za razmislek o dolgoročnih posledicah svojega početja. Prav zato ima okoljska vzgoja pomembno vlogo pri oblikovanju trajnostnega mišljenja in odnosa posameznika do našega planeta. Pomembna pa ni le za tistega, ki je vzgoje deležen, pač pa tudi za tistega, ki vzgojo posreduje. Kot učiteljica angleščine in učiteljica v podaljšanem bivanju, sem se odločila, da bom okoljsko vzgojo čim bolj vpletla v svoje delo. Ker je le-ta zastavljena medpredmetno, sem se povezala tudi z učiteljico spoznavanja okolja. Pri angleščini so bili učenci deležni vsebin in didaktičnih iger na temo okoljske vzgoje v angleščini, pri spoznavanju okolja pa v maternem jeziku. Ker sva obe učiteljici – tako jaz kot učiteljica spoznavanja okolja – tudi učiteljici v podaljšanem bivanju, sva se odločili, da bova določene aktivnosti okoljske vzgoje izvajali tudi v okviru podaljšane bivanja. Ker so bile igre narejene iz odpadnih materialov, so učenci spoznali, da so lahko tudi odpadki uporabni in da je možno z nekaj domišljije in spretnosti izdelati različne igre, ki jim omogočajo igriv in zabaven način učenja. S predstavljenim načinom dela so se učenci v okviru različnih predmetov urili v razvijanju medsebojne strpnosti, spoštovanja in sodelovanja, hkrati pa so tudi krepili in ponotranjali navade pozitivnega in odgovornega odnosa do okolja. Slednje bi morala postati ena glavnih nalog današnjega izobraževanja tako učencev kot učiteljev, če želimo, da bodo tudi prihajajoče generacije lahko uživale kvalitetno življenje ter naravne danosti.

KLJUČNE BESEDE: okoljska vzgoja, medpredmetno povezovanje, angleščina, spoznavanje okolja, didaktične igre.

EXAMPLES OF ENVIRONMENTAL EDUCATION LESSONS AND MAKING DIDACTIC GAMES FROM WASTE MATERIAL IN ENGLISH CLASSES IN THE 3RD GRADE OF PRIMARY SCHOOL

ABSTRACT

With his reckless way of life, man has degraded natural goods in a fairly large extent. The fast pace of everyday life forces him to focus on how to get through the day, and he has little time and opportunity to think about the long-term consequences of his actions. That is why environmental education plays an important role in shaping the sustainable thinking and attitude of the individual towards our planet. It is important not only for the ones who receive education, but also for the ones who provide it. As an English teacher and an after-school class teacher, I decided to involve environmental education in my work in the greatest possible extent. Since it is cross-curricular, I also connected with the environmental education teacher. In English lessons, students received content and didactic games on the topic of environmental education in English, and the content was delivered in their mother tongue in environmental education. Since both teachers - myself and the environmental education teacher - are also teachers in after-school classes, we decided to carry out certain activities of environmental education in the context of after-school classes. Because the games were made from waste materials, the students realized that waste can also be useful and that it is possible with some imagination and skill to create different games that allow them a playful and fun way of learning. With the presented way of working the students were trained in the development of mutual tolerance, respect and cooperation in various subjects and at the same time they strengthened and internalized the habits of a positive and responsible attitude towards the environment. The latter

should become one of the main tasks of today's education of both students and teachers if we want future generations to be able to enjoy a quality life and natural resources.

KEYWORDS: environmental education, cross-curricular integration, English, didactic games.

VKLJUČEVANJE KEMIJE K POUKU GEOGRAFIJE: EKOLOŠKE TEŽAVE NORDIJSKIH DRŽAV – MEDPREDMETNA POVEZAVA

POVZETEK

Vključevanje kemijskih vsebin pri pouku drugih predmetov je ne le dobro, temveč skoraj nujno. V sodobnem svetu se znanstvene vede medsebojno prepletajo. Zaradi tega moramo učitelji v šolah razmišljati, kako pouk ne le popestriti, temveč tudi narediti interdisciplinaren. V ta namen na naši šoli stremimo k izpeljavi mnogih medpredmetnih povezav. V tem prispevku je podrobneje predstavljena medpredmetna povezava med kemijo in geografijo na temo ekoloških težav nordijskih držav. Ta medpredmetna povezava zajema kemijske vsebine povezane z nafto in naftnimi derivati, predelavo nafte ter posledicami prekomerne uporabe naftnih derivatov, kar se je kazalo na pojavu kislega dežja, ki je povzročil veliko ekološko katastrofo. V prispevku so opisane metode dela pri pouku ter zeleni cilji, h katerim sva učitelja kemije in geografije stremela pri izvedbi te medpredmetne povezave. Dijaki so v sklopu te medpredmetne povezave spoznali načine čiščenja nafte, reševanje ekoloških katastrof ter kemijo v ozadju procesov, pri čemer so bogatili splošno izobrazbo, poglobljali znanje kemije in geografije ter razvijali kritično razmišljanje. Cilji, ki smo jih pri izvedbi te medpredmetne povezave zasledovali, so bili utrjevanje ter poglobljanje kemijskih vsebin, ki so jih dijaki že spoznali pri pouku kemije in hkrati utrjevanje geografskih vsebin, prikaz konkretnih primerov kemijskih reakcij in procesov v naravi v povezavi z geografskimi vsebinami. Dijaki so tako na drugačen način povezali vsebine dveh predmetov. Dijakom se je poglobilo zavedanje o konkretnih ekoloških problemih nordijskih držav ter njihovo reševanje.

KLJUČNE BESEDE: ekološke vsebine, kemija, nafta, kisli dež, Nordijske države.

INTRODUCING CHEMISTRY INTO GEOGRAPHY LESSONS: ECOLOGICAL PROBLEMS IN NORDIC COUNTRIES – CROSS-CURRICULAR LESSON

SUMMARY

The inclusion of chemistry topics in the teaching of other subjects is not only beneficial, but almost necessary. In the modern world, sciences are intertwined. Hence, teachers need to think about not only how to diversify lessons, but also make them interdisciplinary. To this end, our school strongly encourages cross-curricular links. This paper is a detailed account of a cross-curricular link between Chemistry and Geography on the topic of ecological problems of the Nordic countries. In terms of Chemistry, the cross-curricular link covers the topics on oil and petroleum products, oil refining, and the consequences of petroleum products overuse, which led to the occurrence of acid rain, causing a major environmental disaster. The paper describes the classroom methodology and the desired goals to which Chemistry and Geography teachers aspired in the implementation of this cross-curricular lesson. The students learned how to clean up oil, how to solve environmental disasters, and the chemistry behind these processes, enriching their general knowledge, deepening their knowledge of Chemistry and Geography, and developing critical thinking. The goals we wanted to achieve were revision of the facts students already acknowledged in chemistry and geography classes, real case study of chemical reactions and processes in nature in connection with geography class contents. Students were in the end able to connect the facts from different point of views. Students increased their awareness about real ecological problems that Nordic countries had and how those problems were solved.

KEYWORDS: ecology, chemistry, oil, acid rain, Nordic countries.

»ZELENI« PROJEKTI V PRVEM TRILETJU OSNOVNIH ŠOL

POVZETEK

Naše okolje se z vplivom človeka negativno spreminja. Naravno ravnovesje se v zadnjih desetletjih drastično krha, kar pod vprašaj postavlja tudi naš obstoj v prihodnosti, kot ga poznamo sedaj. Skozi leta poučevanja opažam, da imamo učitelji velik vpliv na vrednote otrok. S tem vedenjem v šolski prostor vnašamo vedno več projektov, ki želijo dolgoročno vplivati na življenje posameznika in družbe. V prvi triadi vidim odlično priložnost za učenje in ponotranjenje zdravega življenjskega sloga, prehrane in tudi skrbi za naše okolje. V prispevku sem osvetlila pomen takojšnjega ukrepanja za zaščito okolja, proekološko vedenje in konkretne aktivnosti, ki jih izvajam z mojimi učenci v prvem triletju. Okoljske tematike prepletamo pri različnih učnih predmetih in tako z medpredmetnim povezovanjem izpeljemo projekte, preko katerih nagovorjamo in spodbujamo učence šole k aktivnemu vključevanju pri skrbi in ohranjanju šolskega okoliša. Ugotavljam, da so ekološko obarvani projekti pomembni za učence iz večih vidikov, saj z njimi razvijajo v osnovni odgovoren odnos do narave, hkrati pa se učijo tudi sodelovalnega in projektnega učenja.

KLJUČNE BESEDE: projektno učenje, narava, ekologija.

»GREEN« PROJECTS IN THE FIRST YEARS OF ELEMENTARY SCHOOLS

ABSTRACT

Our environment negatively changes under human influence. The natural balance has been drastically disrupted in recent decades, which also calls into question our future existence as we know today. Through years of teaching, I have noticed that teachers have a great influence on children's values. With this knowledge, more and more projects are being introduced into the school environment, with purpose to have a long-term impact on the life of individual and society. In the early classes of elementary school, I see a great opportunity for learning and internalization of healthy lifestyle, diet and also caring for environment. In this article, I highlighted the importance of immediate action for environmental protection, pro-ecological behavior and concrete activities that I carry out with my students. We intertwine environmental topics in various school subjects. We carry out projects through which we address and encourage students to actively participate in the care and preservation of the school environment. I find that ecologically colored projects are important for students from several aspects, as they develop a basic responsible attitude towards nature, as well as collaborative and project-based learning.

KEYWORDS: project learning, nature, ecology.

PRIDOBIVANJE PRVIH IZKUŠENJ V SVETU EKOLOGIJE

POVZETEK

Narava je naše največje bogastvo in če želimo ohraniti naravo za naslednje generacije otrok, jo je treba ohranjati in o tem ozaveščati otroke že v predšolskem obdobju. Ozaveščanje o naravi in s tem tudi ekologiji se prične že v zgodnjem otroštvu, zato sem se odločila za aktivno vključevanje ekoloških vsebin pri svojem delu, v prvem starostnem obdobju otrok v vrtcu. Skozi daljše časovno obdobje sem otroke seznanjala z naravnimi materiali, ponovno uporabo odpadnega materiala in vzgajanjem rastlin. Naravne materiale smo opazovali v naravi, jih nabirali, tipali in se z njimi igrali. Zbirali smo odpadni material ter ga ponovno uporabili pri raznih dejavnostih skozi igro. Rastline smo sejali, sadili, za njih skrbeli, opazovali njihovo rast. Cilj ekoloških vsebin pri delu z otroki je spodbujanje interesa do spoznavanja narave in uživanja v njej ter zgodnje seznanjanje in ozaveščanje otrok o ohranjanju narave. Otroci so si s skrbno načrtovanimi vsebinami s področja ekologije pridobili prve bogate izkušnje, ki jim bodo dobra popotnica za prihodnost.

KLJUČNE BESEDE: vrtec, narava, odpadni material, sajenje rastlin, naravni materiali

GAINING THE FIRST EXPERIENCE IN THE WORLD OF ECOLOGY

ABSTRACT

Nature is our greatest wealth and if we want to preserve nature for the future generations of children, it is necessary to preserve it and raise awareness of children in the preschool period. I am of the opinion that awareness of nature and thus also ecology begins in early childhood, so I decided to actively include ecological content in my work, and work with the very young children in kindergarten. Over a long period of time, I introduced the children to natural materials, reuse of waste materials and growing plants. We observed natural materials in nature, collected them, felt them and played with them. We collected waste material, and reused it in various activities throughout the game. We sowed, planted, cared for plants, observed their growth. The goal of ecological content in working with children is to promote interest in learning about nature and enjoying nature, and early acquaintance and awareness of children about nature conservation. With carefully planned contents in the field of ecology, the children gained their first rich experience, which will be a good guide for the future.

KEYWORDS: kindergarten, nature, waste material, plant growing, natural materials.

Z EKOLOGIJO V PRIHODNOST

POVZETEK

Naša šola v letošnjem šolskem letu obeležuje 150. jubilejno leto svojega delovanja. V ta namen smo na šoli pripravili veliko aktivnosti s cilji, da bi učenci razvijali pripadnost šoli, skupnosti in kraju ter da bi ustvarili sproščeno, pozitivno, varno in ustvarjalno učno okolje, ki bi omogočalo dobro počutje učencev in zaposlenih. Dejavnosti smo razdelili na pet različnih področij, med katerimi je tudi področje naravoslovja z ekologijo. Glavni cilj naravoslovnih aktivnosti, ki potekajo tekom celega šolskega leta, je, učencem omogočiti razvijanje empatičnega, spoštljivega in odgovornega odnosa do narave in varovanje njene raznolikosti. V prispevku bom opisala nekaj aktivnosti iz področja naravoslovja in ekologije, ki smo jih že izvedli. Z dejavnostjo, ki smo jo poimenovali Zeleni koraki, smo spodbujali prihod učencev v šolo peš, z ekološko stražo smo skrbeli za urejenost šole in šolskega igrišča, za boljše počutje v razredu smo posadili rože in okrasili okenske police. Razrede smo opremili s koši za smeti in označili ekološke otoke, na dnevih dejavnosti smo ponovno uporabili odpadno embalažo in se navajali na ločeno zbiranje odpadkov. V šolski okolici smo poimenovali drevesa in pripravili sadike za sajenje na vrtu. S sodelovanjem pri aktivnostih so učenci pridobivali novo znanje in veščine hkrati pa razvijali empatijo, strpnost, pripadnost, spoštovanje in sodelovanje.

KLJUČNE BESEDE: obletnica šole, naravoslovje, ekologija, sodelovanje.

WITH ECOLOGY INTO THE FUTURE

ABSTRACT

This school year our school is celebrating its 150th anniversary. To commemorate the occasion, we have prepared different activities at the school with the goal of developing sense of belonging to local community and school, to create a relaxed, positive, safe and creative learning environment that would encourage the well-being of students and employees. We divided the activities into five interest areas, with special emphasis on the field of science and ecology. Science activities take place throughout the school year and are meant to develop an empathetic, respectful and responsible attitude towards nature and to protect its diversity. This article will describe a couple of activities in the field of science and ecology, that we have already carried out. We called the first activity Green Steps and with it we encouraged pupils to come to school on foot. The activity Ecological Guard was focused on taking care of school and the school playground; we planted flowers and decorated windows with them to make the atmosphere of classrooms better. We equipped the classrooms with rubbish bins, we marked ecological islands for separate waste collecting and on activity days we reused waste packaging. We named all the trees on school grounds and prepared seeds for planting in the school garden. Pupils, that participated in the activities, gained new knowledge and skills in the field of science and ecology while also developing empathy, tolerance, sense of belonging, respect and cooperation.

KEYWORDS: school anniversary, science, ecology, collaboration.

VKLJUČEVANJE STARŠEV V OKOLJSKO VZGOJO V ČASU ŠOLANJA NA DALJAVO

POVZETEK

Izvajanje pouka na daljavo je v času zaprtja šol otežilo obravnavo učne snovi. Spremenjene okoliščine so nam učiteljem poleg omejitev ponudile nove možnosti organizacije pouka. Sodelovanje učiteljev in staršev učencev 1. triletja je bilo za usvajanje učne snovi zelo pomembno. Želeli smo preseči zgolj sodelovanje na organizacijskem in tehničnem področju ter starše vključiti v načrtovanje in obravnavo učne snovi. Oblikovali smo projekt Varuhi Zemlje, v katerem smo pri predmetu spoznavanje okolja obravnavali vsebine iz sklopa okoljske vzgoje. Naš cilj je bil v učencih spodbuditi aktivno vlogo pri ohranjanju okolja. Vodila nas je želja, da bi učenci znanje iz šolskega prostora prenesli tudi domov. Staršem smo predstavili cilje in načrtovane dejavnosti. Starši so podali mnenje in potrdili sodelovanje v projektu. Po začetni obravnavi učne snovi so učenci dobili različne naloge, ki so se navezovale na organiziranje manjše porabe energije, vode, odpadne embalaže ter na ločevanje in recikliranje odpadkov. Naše ugotovitve po vrnitvi v šolo so bile v boljši uporabi okoljskega znanja, predvsem na področju ločevanja odpadkov in varčevanja z vodo ter elektriko. Učenci so izražali tudi večji občutek soodgovornosti za stanje okolja. Starši so po končanem projektu poročali o nekaterih pozitivnih spremembah v gospodinjstvu, ki so bile posledica sodelovanja v projektu, ter o zadovoljstvu, da so lahko sodelovali pri oblikovanju učnega procesa.

KLJUČNE BESEDE: šolanje na daljavo, sodelovanje s starši, okoljska vzgoja, recikliranje.

THE INVOLVEMENT OF PARENTS IN ENVIRONMENTAL EDUCATION DURING DISTANCE LEARNING

ABSTRACT

Distance learning during school closures made it difficult to deal with the learning content. In addition to the limitations, the changed circumstances offered us, teachers, new possibilities for organizing lessons. The cooperation of teachers and parents of pupils of the first trimester was very important for the acquisition of the learning content. We wanted to go beyond mere cooperation in the organizational and technical field and involve parents in the planning and dealing with the learning content. We designed the project Guardians of the Earth as part of the subject Environmental studies, where we discussed the content of environmental education. Our goal was to encourage students to play an active role in preserving the environment. We were driven by the desire that pupils would transfer the knowledge from the school to their homes. We presented the goals and planned activities to the parents. The parents gave their opinion and confirmed their participation in the project. After the initial consideration of the learning content, the pupils were given various tasks related to the organization of lower consumption of energy, water, packaging waste and the separation and recycling of waste. Our findings after returning to school were, that pupils used better their environmental knowledge, especially in the field of waste separation and saving water and electricity. Pupils also expressed a greater sense of co-responsibility for the state of the environment. After completing the project, parents reported about some positive changes in the household, as a result of participating in the project, and also about satisfaction of being able to participate in shaping the learning process.

KEYWORDS: distance learning, cooperation with parents, environmental education, recycling.

IZDELAVA DRUŽABNIH IN DIDAKTIČNIH IGER IZ PLASTIČNIH ZAMAŠKOV V POSEBNEM PROGRAMU VZGOJE IN IZOBRAŽEVANJA

POVZETEK

Odgovoren odnos do okolja je v današnjem svetu pomembna vrednota. Ločevanje odpadkov in njihova ponovna uporaba je družbena odgovornost, s pomočjo katere lahko pomagamo pri reševanju problematike prevelikega kopičenja odpadkov. Šola je ena izmed najpomembnejših institucij, ki lahko veliko pripomore k ponovni uporabi odpadkov. Navajanje učencev na ločeno zbiranje in odgovorno ravnanje z odpadki je pomemben vzgojno-izobraževalni cilj, kateremu je potrebno nameniti več pozornosti. Odpadni plastični material je zelo dostopen, zato je pomembno, da učence najprej spodbujamo k zbiranju le-tega, nato pa jih naučimo, kako ga lahko z reciklažo ponovno koristno uporabimo. Učenci z motnjami v duševnem razvoju se učijo na drugačen način in za razumevanje učne snovi potrebujejo ogromno konkretnega materiala in ponazoril. Iz tega razloga se učitelji pri svojem delu velikokrat poslužujemo samostojne izdelave učil in pripomočkov. V prispevku bomo predstavili, kako smo z učenci posebnega programa vzgoje in izobraževanja, iz plastičnih zamaškov izdelali različne družabne igre in didaktične pripomočke, s pomočjo katerih se lahko učijo in usvajajo cilje individualiziranih programov. Učenci so urili finomotorične spretnosti, razvijali ustvarjalnost in krepili veščine sodelovanja, hkrati pa so obogatili šolski kotiček pripomočkov in didaktičnih materialov, po katerih z veseljem posegajo, saj imajo še večjo vrednost, ker so jih izdelali sami. Izdelani materiali in družabne igre so lahko v pomoč učiteljem in strokovnim delavcem, ki pri svojem delu uporabljajo didaktične pripomočke, ki jih izdelajo sami in pri tem ozaveščajo učence o pomenu recikliranja odpadnega materiala za naše okolje.

KLJUČNE BESEDE: plastični zamaški, recikliranje, učenci z zmerno motnjo v duševnem razvoju, ustvarjalnost.

MANUFACTURE OF SOCIAL AND DIDACTIC GAMES FROM PLASTIC STOPPERS IN A SPECIAL EDUCATION PROGRAM

ABSTRACT

Responsible attitude towards the environment is an important value in today's world. Separation of waste and its reuse is a social responsibility, with the help of which we can help solve the problem of excessive accumulation of waste. The school is one of the most important institutions that can make a significant contribution to the reuse of waste. Getting pupils to separate collection and responsible waste management is an important educational goal that needs more attention. Waste plastic material is very accessible, so it is important to first encourage pupils to collect it and then teach them how to reuse it with recycling. Pupils with intellectual disabilities learn differently and need a lot of concrete material and illustrations to understand the subject matter. For this reason, teachers often use independent production of teaching aids and tools in their work. In this article, we will present how we made various board games and didactic aids from plastic stoppers with the students of the special education program, with the help of which they can learn and master the goals of individualized programs. Pupils practiced fine motor skills, developed creativity and strengthened their skills of cooperation, while enriching the school corner with aids and didactic materials, which they are happy to use, as they have even greater value because they made them themselves. Made materials and board games can help teachers and professionals who use didactic aids in their work, which they make themselves and raise pupils awareness of the importance of recycling waste materials for our environment.

KEYWORDS: creativity, plastic stoppers, recycling, students with moderate intellectual disabilities.

ŠTIRJE NAČINI, KAKO GLASBA IN ZVOK VPLIVATA NA ČLOVEKA

POVZETEK

Navdih za pričujoči prispevek je posnetek svetovno priznanega britanskega strokovnjaka za zvok in komunikacijo Juliana Tresurja, ki je bil objavljen na priljubljeni YouTube platformi TED leta 2009. Njegov govor z naslovom "The 4 ways sound affects us" si je ogledalo več kot pol milijona ljudi. Posnetek so si v okviru projektnega dela in primera dobre prakse pri pouku glasbe ogledali dijaki drugega letnika športne gimnazije. Cilj projektnega dela je bil spoznati vse štiri aspekte vpliva glasbe in zvoka na človeka: fiziološkega, psihološkega, kognitivnega in vedenjskega. Pri praktičnem delu so z metodo pogovora o lastnih izkušnjah in uporabo znanstvene literature poglobili svoje spoznavanje in razumevanje. Tematiko vpliva zvoka in glasbe na človeka so ozavestili s pomočjo samoopazovalne metode in izmenjave mnenj ter medsebojnega primerjanja izkušenj. S pomočjo ustrezne strokovne literature pa so bili zvočni vplivi na človeka predstavljeni kot pomemben element znotraj zavedanja o trajnostnih vrednotah.

KLJUČNE BESEDE: zavedanje zvočnega okolja, iskanje in pogovor o znanstvenih izsledkih, projektno delo.

THE FOUR WAYS MUSIC AND SOUND AFFECTS US

ABSTRACT

My inspiration for this presentation is a recording of the world-renowned British sound and communication expert, Julian Tresur, which was posted on the popular YouTube platform "TED", in 2009. His speech, entitled "The 4 ways sound affects us," was viewed by more than half a million people. The second year students from sports classes watched the speech as a part of the Project Work and Example of Good Practice. The aim was to learn about all four aspects of music and sound's influence: physiological, psychological, cognitive and behavioural. The students who participated in the project were divided into several working groups, each was given a different task. The first group focused on the conversation and looked for the scientific information on the topic of the title. The second group drew up a questionnaire on the topic of the impact of sound and music on the man to whom the students of the first year were responding. The data collected in the questionnaire were reviewed and analysed.

KEYWORDS: team work, project work, questionnaire, search and discussion on scientific findings.

BATERIJE – GONILO ZELENIH TEHNOLOGIJ

POVZETEK

Baterije spadajo med najstarejše tehnologije, ki jih vsakodnevno uporabljamo. Od prvih baterij pa do danes se v osnovi niso veliko spremenile. Danes si brez njih življenja ne moremo več predstavljati. Postajajo čedalje bolj pomembni hranilniki »zelen« energije, to je energije, ki jo pridobimo iz obnovljivih virov energije. V baterijah shranjujemo trenutne presežke električne energije iz omrežij, zato so gonilo razvoja pametnih omrežij, pametnih mest in pametnih domov. Z razvojem električnih avtomobilov baterije postajajo tudi sinonim za večjo mobilnost. Olajšale so nam številna vsakodnevna opravila in uporabljamo jih v vedno številnejših prenosnih napravah. Kljub množični uporabi v vsakdanjem življenju, pa je njihovo delovanje za večino dijakov precejšnja uganka. Z delovanjem baterij se dijaki v gimnazijskem programu pri pouku kemije seznanijo proti koncu drugega letnika v poglavju Oksidacija in redukcija. V članku bom predstavila način, kako se seznanijo z dosedanjim razvojem baterij, spoznajo sestavo baterij in kako v šolskem laboratoriju sami izdelajo baterije iz različnih materialov. V članku je opisano eksperimentalno delo na temo baterij v šolskem laboratoriju. Cilj eksperimentalnega dela je, da dijaki samostojno izdelajo baterije iz različnih materialov in spoznajo kemijske procese v njih. Rezultati aktivnih oblik podajanja znanja so tudi spoznanja dijakov, kako je razvoj baterij vplival na razvoj človeške družbe nekoč in kako velik vpliv imajo baterije na razvoj zelenih tehnologij danes.

KLJUČNE BESEDE: baterije, električna energija, izdelava baterije v šolskem laboratoriju, obnovljivi viri energije.

BATTERIES – DRIVING FORCES OF GREEN TECHNOLOGIES

ABSTRACT

Batteries are one of the oldest technologies we use every day. Ever since the development of the first ones they have not changed much in principle. Today, we can no longer imagine life without them. They are becoming increasingly important as "green" energy power banks, i.e. energy generated from renewable energy sources. Batteries store the current surplus electricity from the grid and are driving the development of smart grids, smart cities and smart homes. With the development of electric cars, batteries are also becoming synonymous with greater mobility. They have made many everyday tasks easier and are used in an increasing number of portable devices. Despite their widespread use in everyday life, most students find their function a mystery. In the grammar school chemistry curriculum, students are introduced to the functioning of batteries at the end of the second year in the Oxidation and Reduction section. In this article I will present how they learn about the development of batteries to date, how batteries are composed, and how they can make their own batteries from different materials in the school laboratory. This article also describes experimental work regarding batteries in a school laboratory. The aim of the experimental work is for students to independently make batteries from different materials and to learn about the chemical processes involved. Through active learning activities, students learn how the development of batteries influenced the development of human society in the past, and how batteries have a major impact on the development of green technologies today.

KEYWORDS: batteries, battery making in a school laboratory, electricity, renewable energy sources.

S KOKOŠKO ROZI K TRAJNOSTNEMU NAČINU ŽIVLJENJA NA I. OŠ ROGAŠKA SLATINA

POVZETEK

V prispevku predstavljam vključenost v projekt TRAJNOSTNA MOBILNOST V OŠ – GREMO PEŠ S KOKOŠKO ROZI, ki smo ga na I. OŠ Rogaška Slatina izvajali v šolskem letu 2019//2020. Z nalogami smo sledili zastavljenim ciljem projekta, ki so temeljila na spremembah potovalnih navad osnovnošolcev v smeri trajnostne mobilnosti, zmanjšanja motoriziranega prometa v okolici šol, zmanjšanja okolijskih obremenitev, spodbujanja gibanja otrok za krepitev njihovega zdravja. Osrednji cilj je bil povečanje prihodov otrok v šolo na trajnostni način za 7 % glede na izhodiščno vrednost. Zastavljen cilj smo celo presegle in povečali prihode na trajnostni način za 16 %. Glede na to, da živimo v času zasičenosti z informacijsko-komunikacijsko tehnologijo in se otroci veliko premalo gibajo, je vključenost v ta projekt, otrokom, učiteljem in staršem pomenila odlično priložnost, da to spremenijo. Hkrati z igranjem igre Kokoška Rozi, smo z učenci posodobili Prometno varnostni načrt in načrt šolskih poti JVIZ I. OŠ Rogaška Slatina ter seznanili Občino Rogaška Slatina s problemom nezadostnih parkirišč za kolesa v neposredni bližini šole.

KLJUČNE BESEDE: trajnostna mobilnost, igra Kokoška Rozi, ozaveščanje, prometno varnostni načrt, parkirišča za kolesa.

WITH CHICKEN ROSES TO A SUSTAINABLE LIFESTYLE ON I. ROGAŠKA SLATINA PRIMARY SCHOOL

ABSTRACT

This paper presents the project Sustainable Mobility in Primary Schools - Let's Walk with Rosie the Hen, which our school took part in in the school year 2019/2020. The aim of the project was to build sustainable travelling habits of schoolchildren, to decrease the use of motorised traffic around schools, to decrease pollution and to encourage children to exercise and promote healthy lifestyle. The main aim of the project was to increase the arrival to school in a more sustainable manner by 7 %. We even exceeded the set goal and increased revenues in a sustainable way by 16 %. This project was a great opportunity for children and their parents to change their habits since they do not exercise enough and encourage children to spend more time outdoors. We also updated Traffic safety plan and school route plan in JIVZ I. OŠ Rogaška Slatina and informed Občina Rogaška Slatina about the lack of bike parking places in the school area.

KEYWORDS: sustainable mobility, a game Rosie the Hen, raising awareness, traffic safety plan, bike parking.

SKRB ZA PTICE POZIMI

POVZETEK

Glavni namen dejavnosti je bil, da učencem približam tematiko ptic. Glavni cilji dejavnosti se navezujejo na spoznavanje ptic, ki pozimi ostanejo v naših krajih, na seznanitev, katera vrsta hrane je primerna za hranjenje ptic, ter na izdelavo ptičjih krmilnic iz odpadnih materialov. Učencem iz oddelka podaljšanega bivanja sem predstavila opise ptic stalnic, ki pozimi ostanejo v naših krajih: velika sinica, vrana, kos, domači vrabec, poljski vrabec, taščica, sraka, plavček, ščinkavec. Predvajala sem jim tudi zvočne posnetke oglašanja zgoraj omenjenih ptic. Spoznali smo, katera hrana je primerna za hranjenje ptic in različne vrste semen. Svet ptic sem jim skušala približati tudi s pomočjo branja zanimivih slikanic o pticah in s predvajanjem ilustracij ptic iz slikanic. Izdelali smo ptičje krmilnice iz različnih odpadnih materialov: pomarančni olupki, tulci iz straniščenega papirja, embalaža od mleka, steklen kozarec za vlaganje, glineni podstavki za rože. Ptičje krmilnice smo postavili na okenske police pred razredom. Vanje smo nasuli semena. Vsakodnevno smo opazovali, katere ptice so se ustavile v naših ptičjih krmilnicah. Ptice smo skušali prepoznati po njihovem videzu in po njihovem oglašanju. Bistvo dejavnosti je bilo v tem, da so učenci razširili svoje znanje o pticah, ki pozimi ostanejo v naših krajih. Pri učencih sem skušala razviti večjo ekološko ozaveščenost glede prehranjevanja ptic pozimi in glede izdelave ptičjih krmilnic.

KLJUČNE BESEDE: ptice pozimi, hranjenje ptic, semena, ptičje krmilnice, opisi ptic, videz ptic in oglašanje ptic, ekološka ozaveščenost.

CARING FOR BIRDS IN WINTERTIME

ABSTRACT

The main purpose of the activity was to bring the topic of birds closer to the pupils. The main objectives of the activity relate to meeting birds that stay in our places in winter, to know which type of food is suitable for feeding birds and to make bird feeders from waste materials. I introduced the pupils in after-school care to the descriptions of resident birds which remain in our area during the wintertime: the great tit, the crow, the blackbird, the house sparrow, the tree sparrow, the robin, the magpie, the blue tit, the chaffinch. I also played them the sound recordings of the above-mentioned bird's calls. We learnt about the food suitable for bird feeding and different types of seeds. I also tried to introduce them to the world of birds through reading interesting picture books about birds and by showing illustrations of birds in the books. We made bird feeders from various waste materials; orange peels, toilet paper tubes, milk cartons, glass pickle jars, clay flower pot trays. We placed the bird feeders on the window sills outside the classroom. We filled them with seeds and observed daily which birds stopped at our bird feeders. We tried to identify the birds by their appearance and by their calls. The whole point of the activity was that the students expanded their knowledge of the birds that stay in our places in winter. I tried to develop a greater ecological awareness by students about bird nutrition in winter and about the production of bird feeders.

KEYWORDS: birds in wintertime, bird feeding, bird feeders, bird descriptions, bird appearance, bird calls, ecological awareness.

IZDELAVA PROJEKTNE NALOGE Z VKLJUČEVANJEM VSEBIN KROŽNEGA GOSPODARSTVA V IZOBRAŽEVALNEM PROGRAMU TEHNIK RAČUNALNIŠTVA

POVZETEK

Krožno gospodarstvo dobiva v vsakdanjem življenju vedno večji pomen, zato ga je smiselno pri pouku podjetništva razvijati in vključevati kot pomemben del vsebine projektnih nalog dijakov. Učitelj lahko s svojimi izkušnjami, z znanjem, odprtostjo, s samozavestjo ter z interdisciplinarnim poučevanjem in aktivnimi metodami pritegne dijake k sodelovanju, tako da se sprostita njihova ustvarjalnost in inovativnost ter porodijo poslovne ideje, vezane na krožno gospodarstvo. Te omogočajo, da dijaki krepijo zavedanje o pomenu krožnega gospodarstva, ki je temelj varnejšega in bolj zdravega sveta ter lahko vpliva na izboljšanje kakovosti življenja. Tematika krožnega gospodarstva pokriva različna področja, povezana s hrano, plastiko, z opremo informacijske tehnologije, predvsem telefonov, računalnikov, tiskalnikov in druge opreme, kar pa predstavlja pomemben vir odpadkov sodobne družbe. Zato je prav te vsebine, s katerimi se bodo srečevali bodoči tehniki računalništva na svoji poklicni poti, smotrno vključevati v izobraževanje. V prispevku je pojasnjena aktivna metoda (npr. možganska nevihta, delo v skupini ...), kako dijake pri pouku vzpodbuditi, da v projektni nalogi, v kateri je treba podati svojo poslovno idejo in ustanoviti podjetje, vključijo vsebino krožnega gospodarstva in načrtujejo izdelke, ki jih lahko izdelajo tako, da jim podaljšajo življenjsko dobo s popravili ali z recikliranjem.

KLJUČNE BESEDE: krožno gospodarstvo, električna in elektronska oprema, podjetnost, projektna naloga.

PREPARATION OF A PROJECT TASK BY INCLUDING THE CONTENTS OF THE CIRCULAR ECONOMY IN THE EDUCATIONAL PROGRAM OF COMPUTER TECHNICIANS

ABSTRACT

The circular economy is becoming more and more important in everyday life, so it is crucial to develop it and include it in the teaching of entrepreneurship, as an important part of the content of students' project tasks. With its experience, knowledge, openness, self-confidence and interdisciplinary teaching, as well as active methods, the teacher can attract students to participate by unleashing their creativity and innovation and generating business ideas related to the circular economy. These enable students to raise awareness of the importance of the circular economy, which is the foundation of a safer and healthier world and can have an impact on improving the quality of life. The topic of the circular economy covers various areas related to food, plastics, information technology equipment, especially telephones, computers, printers and other equipment, which is an important source of waste in modern society. Therefore, it is advisable to include these contents in educating future computer technicians what will encounter in their careers. The article is explain the active method (brainstorming, pair work ...) of encouraging students to include in the project task, where it is necessary to give their business idea and start a company, the content of the circular economy and plan products that can be made to extend their life with repairs or by recycling.

KEYWORDS: circular economy, electrical and electronic equipment, entrepreneurship, project work.

OPAZOVANJE ČLOVEKOVEGA VPLIVA NA OKOLJE IN VNAŠANJE TOČK NA ZEMLJEVID Z UPORABO SPLETNE STRANI GOOGLE MOJI ZEMLJEVIDI

POVZETEK

Z dijaki smo v okviru ur biologije izvedli terensko delo z naslovom Vpliv človeka na okolje – kritično opazovanje, fotografiranje in vnašanje točk na zemljevid. Moj namen je bil, da dijake vzpodbudim, da opazujejo okolje, ga resnično vidijo in ozavešajo, kaj se dogaja okrog njih, da ne bi bili samo brezbržni mimoidoči. Za delo na terenu so potrebovali telefon z naloženim zemljevidom s spletne strani Google Moji zemljevidi. Njihova naloga je bila, da na določenem območju zelo natančno opazujejo okolje in fotografirajo vplive človeka na okolje, negativne in pozitivne, ter da fotografije vnesejo na zemljevid in jih poimenujejo glede na vsebino fotografije. Dijaki so na zemljevid vnesli veliko točk s fotografijami. Kot so kasneje povedali, so opazili stvari, mimo katerih dnevno hodijo, pa jih ne opazijo. V šoli so izvedli vsebinsko analizo in predlagali rešitve ob dani situaciji. Ideja je bila, da bi lahko lokacije, kjer so večje količine odpadkov, posredovali občini Radovljica. Tako bi jih lahko vključili v očiščevalno akcijo Očistimo našo občino — Radovljica, v kateri je naša šola že večkrat sodelovala. Poleg kritičnega opazovanja okolja so se dijaki naučili tudi uporabljati omenjeno spletno stran, ki je lahko uporabna tudi v njihovem vsakdanjem življenju. Po končani dejavnosti sem izvedla anketo, iz katere je razvidno, da so dijaki površni opazovalci okolja. Ko se opazovanja lotijo načrtno, so zelo kritični. Iz ankete je tudi razvidno, da večina dijakov ni poznala te spletne strani in da se jim zdi taka oblika pouka zanimiva in koristna.

KLJUČNE BESEDE: Google Moji zemljevidi, kritično opazovanje, okolje.

OBSERVING THE EFFECT OF HUMANS ON THE ENVIRONMENT AND INSERTING POINTS OF INTEREST ON A MAP WITH THE USE OF GOOGLE MY MAPS

ABSTRACT

As a part of my biology classes, my students and I have conducted fieldwork titled The Effect of Humans on the Environment – Critical Observation, Photography and Marking of Locations on the Map. My intention has been to encourage the students to pay attention to the environment. For the fieldwork, the students have required a mobile phone with an active map from the website Google My Maps. Their objective has been to observe the environment in their given area and take pictures of examples of how people are affecting the environment, positively as well as negatively, and to enter the pictures into the map and name them accordingly. They later said that they noticed things they usually do not, although they had walked past them every day. Back at the school, they have had to complete the assignment by analysing their discoveries and suggesting solutions to the problems they have found. The idea was to pass on the information of where pollution is bad to the municipality of Radovljica. That way they could be a part of the cleaning initiative Let's Clean our Municipality — Radovljica, in which our school has participated many times. Besides learning the skill of critically observing the environment, the students have also learned how to use the aforementioned website, which may prove useful in their everyday lives. After the assignment, I have conducted the survey, from which it has become clear that students can be quite cursory when it comes to the observing of the environment. However, when they approach the observing systematically, they can be very critical. The survey revealed that most students had not heard of the website before and that they believe this kind of lesson is interesting and beneficial.

KEYWORDS: Critical observation, environment, Google My Maps.

INTERDISCIPLINARNI TEMATSKI SKLOP GIBANJE IN NARAVA V SINERGIJI

POVZETEK

V strokovnem prispevku predstavljam interdisciplinarni tematski sklop predmetov kemija, biologija, športna vzgoja in slovenščina Gibanje in narava v sinergiji. Izpostavim namen sklopa, ki je pri mladostnikih poglobiti poznavanje okolja, predvsem čistosti voda, pri njih uzavestiti povezavo med zdravim okoljem in človekom ter športnimi dejavnostmi kot formulo za zadovoljno in uspešno življenje. Slednje je povezano tudi z načinom, kako svoje misli predstavljajo drugim. Z različnimi metodami dela, kot so tabor, ogled podjetij, ki se ukvarjajo z raziskovanjem in varovanjem narave, delo v šolskem laboratoriju, v katerem dijaki izvedejo poskuse in analize okolja, spoznavajo različne vplive človeka na naravo. Cilji sklopa so ozavestiti teoretična in praktična znanja vseh vključenih predmetov, vzpodbuditi kritično razmišljanje o okolju, vplivu posameznika nanj in aktivnem odnosu do njega, skozi športne in naravoslovne dejavnosti v naravi opozoriti na skrb za zdravje, sprejeti gibanje in pravilno prehrano kot vrednoti načina življenja, jasno, natančno in prepričljivo izraziti nova znanja. Rezultati interdisciplinarnega sklopa se kažejo v poglobljenem poznavanju okolja in zavedanju pomena aktivnega preživljanja prostega časa v naravi, brez avdio naprav. Pohodništvo, kolesarjenje, opazovanje narave so načini gibanja in druženja, ki mladim prinašajo vrsto pozitivnih posledic. Mladostnike dejavnosti povežejo, ker so skupinsko izvajane, ugodno vplivajo ne samo na telo, ampak tudi na duševno zdravje in jih naredijo pozornejše na okolje. Ob tem spoznavajo, v kakršnem okolju živijo in v kakšnem naj bi živeli. Povežejo vpliv človeka na okolje in vpliv okolja na človeka ter kvaliteto njegovega življenja. Razmišljajo o načinih, kako lahko sami vplivajo na okolje in lastno dobro počutje. Spoznanja ubesedijo in predstavijo na prepričljiv, jasen način.

KLJUČNE BESEDE: interdisciplinarni sklop, okolje, aktivno preživljanje prostega časa.

THE INTERDISCIPLINARY MODULE MOVEMENT AND NATURE IN SYNERGY

ABSTRACT

The purpose of this professional article is to present the way in which chemistry, biology, physical education and Slovene are embedded in the interdisciplinary module. I will emphasise the aim of the module which is to make students deepen and realize the importance and understanding of one's own environment. The aim is to see the connection between a healthy environment and a human being as well as a physical activity being the formula for a contented and successful life. The latter relates also to the way in which their thoughts and ideas are presented. By using diverse learning methods such as field trips, excursions, they learn about how human beings affect nature. The goals are to make them aware of theoretical as well as practical knowledge of all the included subjects, increase their critical thinking about the environment and be aware of the impact human beings have on it. They should develop an active approach to the environment through various sports and natural science activities. This newly acquired knowledge should be expressed in a precise and convincing way. The results of the interdisciplinary module are visible in their in-depth environmental knowledge and make them see how important it is to spend their free time in nature. Trekking, cycling, observing nature are the ways to move and socialize with many positive results. Such activities connect young. They connect the influence of human beings on environment and the impact of environment on human beings. The students try to find the ways in which they could influence the environment and their own well-being.

KEYWORDS: interdisciplinarni sklop, okolje, aktivno preživljanje prostega časa.

ALTERNATIVNI PRISTOP (SOCIALNO PEDAGOŠKO JAHANJE) V POLJU ZAVODSKE VZGOJE

POVZETEK

V vzgojnih zavodih v Sloveniji so nameščeni otroci, ki imajo težave in/ali motnje v čustvovanju in vedenju. Vsak otrok ima ustvarjalno energijo in moč, ki sta lahko zaradi različnih razlogov družbeno nespremenljivo izraženi. Zato je naloga vzgojitelja, da otroka z motivacijo in vzpodbudo usmerja, da dokaže, da tudi on zmore. V zadnjih letih je prišlo do pozitivnih premikov in sprememb v izbiri in dostopnosti pristočasnih aktivnosti za otroke nameščene v vzgojnih zavodih. Zato so alternativni pristopi dela z njimi, pri našem vsakdanjem delu, izjemno dobrodošli. V prispevku predstavljamo primer dobre pedagoške prakse o obravnavi ekoloških vsebin (socialno-pedagoško jahanje), kako lahko prosti čas mladostniku (s čustveno vedenjsko motnjo in pridruženo motnjo ADHD), z manj priložnosti odpre nova vrata in mu omogoči širjenje njegove socialne mreže. Dejavnosti, ki jih ponujamo zavodi znotraj svojih prostorov, so pomemben del programov, a ne ponujajo dodatne vrednosti širjenja socialne mreže. Dodatno vrednost širjenja socialne mreže ponujajo mladostniku dejavnosti izven zavoda. To pa pomeni, da mladostniku pomagamo poiskati njegova močna področja in interese, kjer se lahko izraža. S terapevtsko oskrbo in z jahanjem konj ne vplivamo samo na razvoj senzomotorične integracije, ampak tudi na gradnjo socialnega načina vedenja ter na ureditev vrednostnega sistema, na razvoj občutka lastne vrednosti in samostojnosti ter na pozitivno samovrednotenje. Zadnje se je, kot posebno pomembno in potrebno, pokazalo med epidemijo COVID-19.

KLJUČNE BESEDE: mladostnik, vzgojni zavod, čustveno-vedenjske težave, ADHD, ekološke vsebine, socialno-pedagoško jahanje.

ALTERNATIVE APPROACH (SOCIAL PEDAGOGICAL HORSE RIDING) IN THE FIELD OF INSTITUTIONALISED EDUCATION

ABSTRACT

Children with problems and/or disturbances in emotion and behaviour are installed in educational institutions in Slovenia. Each child has creative energy and power, which can be socially unacceptably shown for various reasons. Therefore, it is the job of the educator to direct the child with motivation and encouragement to prove that they can do the same. In recent years there have been positive shifts and changes in the choice and accessibility of leisure activities for children installed in educational institutions. Therefore, alternative approaches to working with them, in our daily work, are extremely welcome. The article, will present an example of good pedagogical practice on the treatment of ecological content (socio-pedagogical horse riding), how leisure time can give an adolescent (with emotional behavioural disorder and associated ADHD disorder) a way to open new doors with fewer opportunities and manage to spread their social network. Activities that we offer, are an important part of our program, however, they do not offer the adolescent additional quality of expanding their social network. Activities outside our institution offer additional ways of expanding the social network of the adolescents. We are helping the adolescents to find their strong areas of interest with activities in which they can then express themselves. Therapeutic care and horse riding affect not only the development of sensorimotor integration, but also on the construction of social behaviour and on the regulation of the value system, the development of a sense of self-worth and autonomy and positive self-evaluation. The latter was shown, as particularly important and necessary, during the COVID epidemic.

KEYWORDS: adolescent, institute, emotional-behavioural problems, ADHD, ecology content, socio-pedagogical riding.

EKOLOGIJA IN ANGLEŠČINA OB DNEVU ZEMLJE

POVZETEK

Prispevek temelji na raziskavi učenčevih navad do našega planeta Zemlja. Aktualne tematike ostajajo ekologija, trajnostni razvoj in zavesten odnos človeka do svojega planeta. Prav tako se te teme vedno več prepletajo z urami pouka v šolah, zato je pomembno ohranjati zavesten odnos do širokega pojma ekologije. Pri pouku tujega jezika angleščina smo se ob svetovnem dnevu Zemlje osredinili na naš planet in preverili svojo ozaveščenost o ekološki problematiki, ki ga pesti. Pri pouku je vedno ključnega pomena, da z načinom dela pritegnemo učence, da bodo aktivno sodelovali in s tem lažje pridobili znanje zastavljenih ciljev izbrane tematike. Na podlagi praktične izvedbe pouka so predstavljeni rezultati dobre prakse in odzivi učencev na podlagi evalvacije učnih ur. Učenci so z zanimanjem sodelovali pri uri pouka, kjer smo skupaj ugotovili, da smo sicer dobro ozaveščeni glede ekološke problematike Zemlje, a smo spoznali tudi veliko novega kako na trajnosten način posameznik in skupina pripomorejo do ekološkega načina življenja. Sami odzivi učencev so prikazali kako presentljivo jih pritegnejo teme, ki sicer niso stalnica pri samem pouku tujega jezika. Na podlagi povratnih informacij so učenci uro odlično ocenili in dodali, da želijo več aktualnih tem pri urah pouka. Medpredmetna povezava tujega jezika z aktualno ekološko problematiko je učence spodbudila k razmišljanju o trajnosti, spoštljivem odnosu do narave in o nadaljnjem zanimanju za ekološke teme. Prav tako so primeri dobre prakse predstavljali izhodišče za nadaljnjo uporabo drugim strokovnjakom.

KLJUČNE BESEDE: dan Zemlje, planet, angleščina, ekologija.

ECOLOGY AND ENGLISH ON EARTH DAY

ABSTRACT

The paper is based on a study of students' habits towards our planet Earth. Ecology, sustainable development and the human's awareness towards his planet remain a relevant topic. These topics are increasingly intertwined with lessons in schools, therefore it is important to maintain a conscious attitude towards the broad concept of ecology. During the teaching of English as a foreign language, we focused on our planet on Earth Day and tested our awareness about ecological issues that threaten it. During the lessons it is always essential to use a way of work that attracts the students to actively participate and thus more easily gain knowledge of the goals of a chosen topic. Based on the practical implementation of the lessons, the results of good practice and the students' responses based on the evaluation of lessons are presented. The students were eager to participate during the lesson, where we found out that we are well aware of the ecological problems of the Earth, but we also learned a lot about how individuals and groups contribute in an sustainable way to the ecological way of life. The students' reactions showed how attracted they get by topics that are not a constant in foreign language lessons. Based on the feedback, the students rated the lesson as excellent and added that they want more popular topics during the lessons. The interdisciplinary connection of a foreign language with current ecological issues encouraged students to think about sustainability, gain respect towards nature and develop further interest in ecological topics. Examples of good practice were also a starting point for further use by other experts.

KEYWORDS: Earth Day, planet, English, ecology.

EKOLOGIJA – POUČEVANJE S POMOČJO PROJEKTOV

POVZETEK

Poučevanje ekologije in njenega pomena je lahko monotono in nezanimivo. Aktivne metode poučevanja lahko razbijejo to monotonost in slušatelje spodbudijo k raziskovanju. Na Grmu Novo mesto – centru biotehnike in turizma se trudimo, da bi bilo poučevanje čim zanimivejše za slušatelje, zato smo vključeni v veliko projektov, med njimi je tudi pet takih, ki opozarjajo na pomen varovanja narave in biodiverzitete ali pa pomagajo pri razvijanju drugačnih načinov poučevanja. Projekte financira Evropska unija, bodisi iz programa Erasmus +, Ključni ukrep 2, Strateška partnerstva, ali program LIFE. Skupaj s projektnimi partnerji iščemo načine, kako bi poučevanje ekologije naredili privlačnejše za slušatelje kot predavatelje. V prispevku bomo predstavili tiste projekte, ki prispevajo k drugačnemu poučevanju o ekoloških težavah ter predstavili različne načine. Med njimi sta zgodbarjenje in inovativno poučevanje.

KLJUČNE BESEDE: ekologija, projekti, zgodbarjenje, inovativno poučevanje.

ECOLOGY – TEACHING WITH HELP OF PROJECTS

ABSTRACT

Teaching ecology and its importance can be monotonous and uninteresting. Active teaching methods can break this monotony and encourage listeners to explore. At Grm Novo mesto - the center of biotechnology and tourism, we try to make teaching as interesting as possible for students, so we are involved in many projects, including five that highlight the importance of nature protection and biodiversity or help develop other ways teaching. Projects are funded by the European Union, either from Erasmus +, Key Action 2, Strategic Partnerships, or LIFE. Together with project partners, we are looking for ways to make teaching ecology more attractive to listeners than lecturers. In this paper, we will present those projects that contribute to different teaching of ecological problems and present different ways. These include storytelling and innovative teaching.

KEYWORDS: ecology, projects, story-telling, innovative teaching.

EKOLOŠKE TEME PRI POUKU ANGLEŠČINE

POVZETEK

Starejši kot smo, bolj se začinjamo zavedati, da je v naravi med seboj vse povezano in da naša dejanja vplivajo na okolje ter kako vse to vpliva na življenje ljudi na drugi strani planeta. Tako so, tudi glede na učni načrt angleščina, teme ekologije vključene v pouk angleščine. Pri poučevanju angleškega jezika sem opazila, da so teme, povezane z ekologijo učencem kljub aktualnosti, nezanimive in težko osvojljive. Cilj prispevka je tako pokazati, kako učencem takšne teme približati, tako učencem razredne (preko igre, vsakdanjih opazovanj) kot predmetne stopnje (način, da se lahko izrazijo in so slišani). V prispevku je na kratko predstavljeno, kako se lotim poučevanja ekoloških tem pri pouku angleščine že pri najmlajših učencih tujega jezika. Glavni poudarek je, kako sem se lotila ekologije pri učencih osmega razreda na daljavo in ko so se učenci vrnili v šolske klopi. Učenci so vso pridobljeno znanje združili v predstavitev oziroma govorni nastop. Vključila sem vse 4 spretnosti pri učenju tujega jezika – branje, poslušanje, pisanje ter govorno sporočanje. Učenci so vključili do takrat pridobljeno besedišče ter jezikovne strukture, ki so jih pridobivali tako v živo v preteklih letih kot tudi na daljavo. V prispevku je tako prikazan eden od načinov, kako približati in usvojiti snov, povezano z ekologijo v osnovni šoli pri pouku angleškega jezika. Rezultat našega dela je tako mini portfelj vsakega učenca, v katerega je vstavljaj svoje delo od samega načrtovanja pa do konca, torej predstavitev v angleškem jeziku.. Učenci so za delo veliko bolj motivirani, če do nekega rezultata pridejo sami in se na koncu lahko tudi samostojno izrazijo.

KLJUČNE BESEDE: ekologija, mlajši učenci, osmošolci, predstavitve, kompetence.

ECOLOGY IN ESL CLASSES

ABSTRACT

As we learn more about how our environment functions, we begin to realize that everything is interconnected. We are only just becoming aware of how our actions affect the environment and lives of people across the other side of the planet. The climate is one way in which the environment is making its presence felt in our day-to-day lives so it is only logical that it should play an important role in what our students learn about through English. This paper briefly presents how I approach the teaching of ecology in English lessons, starting with the youngest foreign language learners. When teaching English, I have noticed that ecology-related topics are uninteresting and difficult for students to learn. The paper aims to show how to bring such topics closer to students, both at the primary (through play, everyday observations) and the secondary level (how to express themselves, to have their say). The focus is on teaching the ecology to my eighth graders, online and after they returned to school in March 2021. The students gathered all the knowledge they had acquired in the form of a presentation. I have included all four foreign language-learning skills - reading, listening, writing, and speaking. In preparing their presentation, the students had to incorporate the vocabulary and language structures they had acquired over the years, both in-person and online. The result of our work is a mini-portfolio of each student's work from the planning stage to the end - presentation in English. Students are much more motivated to work if they reach a result by themselves and can loudly express and have their say.

KEYWORDS: ecology, young learners, 8th class students, presentation, skills.

NAKUPOVALNE NAVADE EKOLOŠKIH IZDELKOV DIJAKOV DVOJEZIČNE SREDNJE ŠOLE LENDA VA

POVZETEK

Človeštvo ima velik vpliv na naš planet, nanj vplivamo tudi z našimi prehrabnimi navadami. Trajnostna potrošnja spodbuja potrošnike, da kupujejo ekološko označene izdelke in tako izboljšujejo svoja potrošniška dejanja. Raziskali smo potrošniške navade dijakov Dvojezične srednje šole Lendava. Cilj raziskave je bil ugotoviti stališča dijakov do nakupovanja ekoloških izdelkov ter spoznati njihovo razmišljanje. Ugotovili smo, da se dijaki zavedajo pozitivnih vplivov ekoloških izdelkov na naše zdravje in na okolje, vendar se za ekološke izdelke še ne odločajo v veliki meri, saj jim je eden izmed najbolj pomembnih dejavnikov dostopnost cen ekoloških izdelkov. Glede pogostosti dijaki ekološke izdelke pretežno kupujejo nekajkrat letno. Anonimno anketo je rešilo 75 dijakov Dvojezične srednje šole Lendava.

KLJUČNE BESEDE: nakupovalne navade, ekološki izdelki, trajnostna potrošnja, nakupna namera.

STUDENTS' SHOPPING HABITS OF ECOLOGICAL PRODUCTS AT THE BILINGUAL HIGH SCHOOL LENDA VA

ABSTRACT

Humanity has a great impact on our planet and we affect it with our eating habits. Permanent consumption encourages consumers into buying eco-labelled products and consequently improves their consumer actions. We researched the consumer habits of students of the Bilingual Secondary School Lendava. The research aimed to identify the students' views on purchasing ecological products and get to know their opinion on this matter. We found that students are aware of the positive effects of organic products on our health and the environment, but do not yet opt for organic products to a large extent, as one of the most important factors is the affordability of organic products. In terms of frequency, students mostly buy organic products several times a year. 75 students of the Bilingual High School Lendava completely solved the anonymous survey.

KEYWORDS: shopping habits, ecological products, sustainable consuming, purchasing intent.

EKOLOŠKE VSEBINE PRI POUKU FIZIKE

POVZETEK

Pomembno je, da učencem privzgojimo okolju prijazne vrednote in načela, ki jih bodo vodila skozi življenje. Učitelj je tisti, ki je vzornik učencem za ekološko osveščanje, ne glede na učni predmet, ki ga poučuje. V vseh razredih osnovne šole se pri različnih predmetih pojavljajo cilji z ekološkimi vsebinami. Pregled učnega načrta za fiziko je pokazal, da so ekološke vsebine tudi pri predmetu fizike v 8. in 9. razredu. Pri vsebinah kot so na primer sile, električna energija, ekoloških ciljev sploh ni. Pri vsebini gostota, tlak in vzgon ter delo in energija je ciljev z ekološko vsebino zelo malo. Eden izmed njih je na primer razišči vire onesnaževanja zraka in možne ukrepe za zmanjševanje onesnaževanja. V prispevku je predstavljena analiza učnega načrta in primeri eksperimentalnega dela o ekoloških vsebinah pri pouku fizike. Primer eksperimentalnega dela je nastanek megle in oblaka v plastenki. Preprosto eksperimentalno delo je odličen prispevek učitelja fizike k ozaveščanju ekoloških vsebin pri učencih.

KLJUČNE BESEDE: ekološke vsebine, fizika, učenec, učni načrt.

ECOLOGICAL CONTENTS IN PHYSICS LESSONS

ABSTRACT

It is important, to educate in students environmentally friendly values and principles, that will lead them through life. The teacher is the one, who is the role model for students for ecological contents. Aims with ecological contents appear in various subjects in all grades of a primary school. A review of the physics curriculum showed that ecological content is also in the subject of physics in 8th and 9th grade. With contents, such as power and electricity, there are no ecological aims at all. In contents, such as density, pressure, and buoyancy, and work and energy, learning objectives with ecological content are given. One of the aims is, for example, to explore sources of air pollution and possible measures to reduce pollution. The paper presents an analysis of the curriculum and examples of experimental work on ecological content in physics lessons. The article presents an analysis of the curriculum and examples of experimental work that can be used in ecological contents in physics lessons. An example of experimental work is the formation of the fog and the cloud in the bottle. Simple experimental work is a great contribution of a physics teacher to raising awareness of ecological contents among students.

KEYWORDS: curriculum, ecological contents, physics, student.

EKOLOGIJA ODPADKOV PRI PRAKTIČNEM POUKU V ŠOLSKIH DELAVNICAH IN RAVNANJE Z NJIMI

POVZETEK

Kot ekošola smo opazili, da dijaki premalo ločujejo odpadke in tudi ne vedo, kako jih ločevati. Pri praktičnem pouku smo se v okviru ekoloških tem odločili za projekt, v katerem bi pregledali vrste odpadkov v naših delavnicah in kako z njimi ravnamo. Z dijaki smo se najprej pogovorili o odpadkih, nato pa analizirali, katere vrste odpadkov nastajajo med učnim procesom v delavnicah in šoli med teoretičnim poukom. Osredotočili smo se na avtokleparsko, strojno in avtomehaniško delavnico ter komunalne odpadke po hodnikih učnih delavnic in učilnic šole. Ugotovili smo, zakaj je potrebno ločevanje, kaj je urejeno in kaj bi bilo potrebno urediti. Največjo pomanjkljivost smo zaznali pri zbiranju baterij raznih elektronskih naprav, zato smo z dijaki izdelali odlagalni prostor za baterije, ga montirali na hodnik in označili. Dijaki so z zanimanjem pregledali odpadke, najbolj pa so jih motile večje količine pločevink in plastenk raznih napitkov. Prišli so do ideje, da bi bilo potrebno zmanjšati volumen teh odpadkov. Ker so to dijaki, ki se izobražujejo za poklic mehatronik in mehatronik operater, so se odločili, da v okviru praktičnega pouka izdelajo stiskalnico za pločevinke. Ta je sestavljena iz stiskalnice, delujoče na stisnjen zrak, podajalnega mehanizma – manipulatorja s prijemalno roko in tekočega traku, ki stisnjene pločevinke transportira v koš. Projekt je zanimiv, saj dijaki na ta način spoznavajo ekologijo in hkrati pridobivajo ter utrjujejo strokovna znanja, potrebna za njihov poklic. Poveča se tudi motivacija za delo. Dijaki so pridobili na ozaveščenosti o varovanju okolja in ločevanju odpadkov. Sedaj opažamo, da dijaki več uporabljajo steklenice za večkratno uporabo. Ker smo velika šola, se bodo odpadne stisnjene pločevinke prodajale podjetju Dinos, s tem pa bomo omogočali nadstandardni pouk. Dijaki tudi bolj racionalno uporabljajo papirne brisače za brisanje rok, drug drugega opozarjajo na manjšo porabo vode pri umivanju in jo tudi vestno zapirajo.

KLJUČNE BESEDE: praktični pouk, odpadki, ločevanje, pločevinke, stiskalnica, stisnjen zrak.

WASTE ECOLOGY IN PRACTICAL LESSONS IN SCHOOL WORKSHOPS AND HANDLING

ABSTRACT

As an eco-school, we have noticed that students don't sort waste enough and do not know how to sort it. During the practical lessons within the ecological topics, we decided to start a project in which we would review the types of waste in our workshops and study waste management. We talked to the students about waste, and then analysed what types of waste are generated during the learning process in the workshops and in the school during the theoretical lessons. We focused on the auto body repair, machine workshop, automobile repair shop and municipal waste in the corridors of the school's workshops and classrooms. We analysed why waste sorting is needed, what is already in order and what should yet be regulated. The biggest shortcoming was collection of waste batteries of various electronic devices. Together with students we created a storage space for batteries, mounted it on the hallway and marked it. The students were interested in analysing the types of waste and were most disturbed by the large quantities of cans and bottles of various drinks. They came up with the idea that it would be necessary to reduce the volume of this waste. As these are students who are training for the profession of mechatronics and mechatronics operator, they decided to make a can press for practical classes. It consists of a compressed air press, a feeding mechanism - a manipulator with a gripping arm and a conveyor belt that transports the compressed cans to the basket. The project is interesting because in this way students learn about ecology and at the same time acquire and consolidate the expertise needed for their profession. Motivation for work also increases. Students gained knowledge on awareness of environmental protection and waste separation. We are now noticing that students are using reusable bottles more. As we are a large school, compressed waste cans will be sold to Dinos,

which will enable above-standard lessons. Students also use paper towels to wipe their hands more rationally, warn each other about the lower consumption of water when washing, and close it diligently.

KEYWORDS: practical lessons, waste, waste separation, cans, press, compressed air.

MERITEV TOPLOTNIH IZGUB MED ZRAČENJEM UČILNICE

POVZETEK

Dejstvo je, da lahko učitelji pokažemo vzoren zgled dijakom z gospodarnim odnosom do ogrevanja učilnice, s katerim se dviga ekološka zavest dijakov o preudarnem ravnanju z energijo. Namen je ozaveščanje učiteljev o pomenu prezračevanja učilnic zaradi izboljšanja kakovosti zraka s čim manjšimi toplotnimi izgubami. Cilj strokovnega članka je poiskati čim bolj optimalen kompromis med ohranjanjem ustrezne kakovosti zraka v učilnici s čim manjšimi toplotnimi izgubami med prezračevanjem učilnice. V sklopu meritve se je spremljalo, za koliko so se znižale koncentracije ogljikovega dioksida (CO_2) v zraku v učilnici med 5-minutnim zračenjem. Na podlagi Mollierjevega diagrama in meritev so se določile toplotne izgube med prezračevanjem učilnice. Z meritvijo se je dokazalo, da lahko s kratkim 5-minutnim zračenjem dosegamo boljšo kakovost zraka z manjšimi toplotnimi izgubami.

KLJUČNE BESEDE: toplotne izgube, zračenje učilnic, ogljikov dioksid (CO_2).

MEASURING HEAT LOSS DURING CLASSROOM VENTILATION

ABSTRACT

It is a fact that teachers can set a good example for students by being economical with classroom heating, which raises the students' ecological consciousness of prudent energy management. The aim is to raise teachers' awareness of the importance of ventilating classrooms to improve air quality while minimising heat loss. The aim of the paper is to find the optimum compromise between maintaining adequate air quality in the classroom while minimising heat loss during classroom ventilation. In the measurement process, it was monitored by how much the carbon dioxide (CO_2) concentrations in the classroom air decreased during 5-minute ventilation. Based on the Mollier diagram and the measurements, the heat losses during the ventilation of the classroom were determined. The measurement showed that a short 5-minute ventilation can achieve better air quality with lower heat losses.

KEYWORDS: heat loss, classroom ventilation, carbon dioxide (CO_2).

ZEMLJA V ROKAH NAŠIH NAJMLAJŠIH

POVZETEK

V prispevku so predstavljene dejavnosti in primeri dobre prakse, s katerimi na Osnovni šoli Boštanj že vrsto let sledimo ciljem ekološkega ozaveščanja. Ena izmed prednostnih nalog našega delovanja je odnos posameznika do okolja. Učencem je ponujen pester nabor nalog, kot so branje knjig in člankov z ekološko tematiko, vključevanje v projekt Evropski teden mobilnosti, ločevanje in ponovna uporaba odpadkov, prevzemanje vloge eko detektivov, zasaditev rastlin v učilnici in okolici šole, urejanje zeliščnih vrtičkov, obisk bližnjih kmetij in uvajanje posodic pri malici za zmanjševanje količine zavržene hrane. Navedene dejavnosti izvajamo tekom učnega procesa v šoli, popestrimo pa jih s sodelovanjem z zunanjimi sodelavci in lokalnim okoljem (Krajevna skupnost Boštanj, Komunala Sevnica, Dom upokojencev in oskrbovancev Impoljca, Turistična zveza Občine Sevnica, bližnje kmetije). Učenci preko branja, poslušanja, izdelovanja praktičnih izdelkov, opazovanja, ogleda čistilnih naprav, vodohrana, kmetij, sodelovanja pri urejanju zeliščnih vrtičkov in čistilnih akcijah spoznajo, da lahko tudi kot posamezniki prispevajo k boljšemu jutri. Učiteljeva naloga je preiščena in kvalitetna organizacija pouka, ki postavi učenca v aktivno vlogo pri usvajanju učnih vsebin. Tako se pridobljeno znanje hitreje ponotranji in s tem prenese v domače okolje in dnevno rutino. Učenci na ta način lažje ozavestijo pomen učenja za življenje. Z likovno nalogo »Planet Zemlja je v tvojih rokah« skušamo simbolično dokazati, da smo za naš planet odgovorni vsi in da imajo naši najmlajši največ možnosti, da kaj spremenijo. Z majhnimi koraki zagotovo pridemo do velikih sprememb.

KLJUČNE BESEDE: eko branje, trajna mobilnost, odpadki, varčevanje, zasaditev rastlin, hrana.

EARTH IN THE HANDS OF OUR YOUNGEST

ABSTRACT

The article presents activities and examples of good practices that have been used for pursuing the goals of ecological awareness at the Boštanj Primary School for many years. One of the priorities of our work is the individual's attitude towards the environment. Pupils are offered a wide range of tasks such as reading books and articles on organic issues, joining the European Mobility Week project, separating and reusing waste, taking on the role of eco detectives, planting plants in and around the school, arranging herb gardens, visiting nearby farms and introducing snack containers to reduce food waste. We carry these activities out during the learning process at the school. They are enriched by cooperation with external collaborators and the local environment (Local Community Boštanj, Komunala Sevnica, Retirement Home Impoljca, Tourist Association of Sevnica and nearby farms). Through reading, listening, making practical products, observing, visiting sewage treatment plants, water tanks, farms, participating in arranging herb gardens and cleaning campaigns, students learn that they can also contribute to a better tomorrow as individuals. The teacher's task is a well-thought-out and quality organization of lessons, which puts the student in an active role in assimilating the learning content. Thus, the acquired knowledge is internalized faster and transferred to the home environment and daily routine. That makes it easier for students to internalize the importance of learning for life. With the art project "Planet Earth is in your hands", we try to symbolically prove that we are all responsible for our planet and that our youngest ones have the best chance to change things. With small steps, we certainly make great changes.

KEYWORDS: eco-reading, sustainable mobility, waste, saving, planting plants, food.

POUČEVANJE TRAJNOSTNEGA RAZVOJA SKOZI PODJETNIŠKE PROJEKTE IN STROKOVNE MODULE V SREDNJEŠOLSKEM PROGRAMU EKONOMSKI TEHNIK

POVZETEK

V članku se osredotočam na izzive združitve poučevanja vsebin trajnostnega razvoja, ekologije in podjetništva v srednješolskem izobraževanju v programu Ekonomski tehnik pri dijakih. Predstavljam konkretne ideje in rešitve kako lahko združimo različne projekte med seboj in skupaj s poučevanjem trajnostne ekonomije v času pouka motiviramo zaposlene ter dijake ter stopimo korak bližje do bolj kakovostnega poučevanja podjetništva v luči trajnostnega razvoja v srednjih šolah. Namen povezovanja je, da dijaki v stimulativnem in varnem okolju, pridobijo motivacijo in poglobljen, kakovosten ter celovit pogled na vsebine: reševanja izzivov trajnostnega podjetništva, učiteljem pa omogočimo plačano mentorstvo dijakom, izobraževanje in usposabljanje ter nove možnosti osebnega razvoja ter področja strokovne usposobljenosti. Cilj povezovanja pa je, da dijaki pridobijo prvo konkretno, poglobljeno in novo realno izkušnjo z vsebinami trajnostnega razvoja, zelenim podjetništvom v varnem okolju, ki jim bo omogočila osebno rast ter lažje razumevanje in reševanje trajnostnih izzivov ter uspešno podjetniško delovanje v kasnejšem kariernem razvoju in življenju. V članku predstavljam bistvene pozitivne učinke izobraževanja in vključevanja vsebin trajnostnega razvoja v programu Ekonomski tehnik. Opisane so številne prednosti ki jih lahko združimo v okviru treh interesnih skupin – dijaki, učitelji ter izobraževalni zavodi. Prikazani so tudi novi prihodnji izzivi in smernice razvoja poučevanja trajnostnega razvoja v okviru podjetništva.

KLJUČNE BESEDE: Ekologija, trajnostni razvoj, podjetništvo, srednja šola, izobraževanje.

TEACHING SUSTAINABLE DEVELOPMENT THROUGH ENTREPRENEURIAL PROJECTS AND PROFESSIONAL MODULES IN THE HIGH SCHOOL PROGRAM ECONOMIC TECHNICIAN

ABSTRACT

In this article, I focus on the challenges of combining the teaching of sustainable development, ecology and entrepreneurship in secondary education in the Economic Technician program for students. I present concrete ideas and solutions on how we can combine different projects with teaching sustainable economics during school courses and at the same time motivate employees and students to step closer to better and quality teaching of entrepreneurship in the light of sustainable development in secondary schools. The purpose of the connection is for students in a stimulating and safe environment to gain motivation and an in-depth, high-quality and comprehensive view of the content: solving the challenges of sustainable entrepreneurship, and teachers to provide paid mentoring, education and training and new opportunities for personal development and skills. The goal of the connection is for students to gain their first concrete, in-depth and new real experience with the contents of sustainable development, green entrepreneurship in a safe environment that will enable them personal growth and easier understanding and solution of sustainable challenges and successful entrepreneurship in later career development and life. In this article, I present the significant positive effects of education and the inclusion of sustainable development content in the Economic Technician program. Many advantages can be described that can be combined within three interest groups - students, teachers and educational institutions. New future challenges and guidelines for the development of entrepreneurship teaching are also presented.

KEYWORDS: Ecology, sustainable development, entrepreneurship, high school, education.

EKOLOGIJA SKOZI SREDNJEŠOLSKO MATEMATIKO

POVZETEK

Naša življenja in življenja novih generacij so popolnoma odvisna od nemotenega delovanja ekosistemov, zato je ozaveščanje o okoljevarstveni problematiki in podnebnih spremembah zelo pomembno. Sedaj je prelomni čas, da nehamo ogrožati stabilnost našega planeta. Z dosedanjim znanjem ter upoštevanjem že znanih rešitev je mogoče marsikaj spremeniti in obrniti svet na bolje. Razmisliti pa je potrebno še o novih pristopih. V prispevku je predstavljeno, kako smo opisane probleme raziskovali pri predmetu matematika v gimnazijskem programu. Dijaki so izbrano problematiko predstavili, jo statistično preučili, napovedali projekcije za prihodnost in opisali rešitve, ki so nujne na izbranem področju. Uporabljali so program Excel za prikaz podatkov v tabeli in grafikonu, aplikacijo GeoGebra za risanje grafov, s katero so izdelali matematične modele, nekateri so svoje raziskovanje predstavili s plakatom. V članku sta predstavljeni raziskavi dijakov o problematiki odpadkov in globalnem segrevanju ozračja. V prvi raziskavi je analizirana količina komunalnih odpadkov v kilogramih na prebivalca v Sloveniji v letih od 2014 do 2020, kjer je ugotovljeno, da količina odpadkov linearno narašča. Za zaustavitev tega trenda in za zmanjšanje količine odpadkov je podanih nekaj nasvetov, kot so kupovanje izdelkov brez embalaže, ponovna uporaba, ločevanje, kompostiranje, recikliranje ... Druga raziskava o globalnem segrevanju ozračja prikazuje naraščanje letne povprečne temperature zraka v Ljubljani v obdobju od leta 2010 do 2020 in opis rešitev tako na osebni kot na globalni ravni. V projektu je nastalo veliko dobrih izdelkov z dodanimi vrednostmi zavedanja ekološke problematike, poznavanja njenih rešitev, biti hvaležen za vse danosti našega planeta ter biti do njega spoštljiv.

KLJUČNE BESEDE: ekologija, matematika, odpadki, segrevanje ozračja, srednja šola.

ECOLOGY THROUGH SECONDARY SCHOOL MATHEMATICS

ABSTRACT

Our lives and the lives of new generations are entirely dependent on the smooth functioning of ecosystems, so raising awareness of environmental issues and climate change is essential. Now is the turning point to stop threatening the stability of our planet. With the current knowledge and implementation of the already known solutions, the world can be changed for the better. Nevertheless, new approaches need to be considered. The paper presents how we researched the described problems in the subject of mathematics in the grammar school secondary program. The students presented the selected issue, analyzed it statistically, announced projections for the future and described the solutions that are necessary in the selected area. They used Excel to display data in a table or chart, a free GeoGebra graph drawing application to make mathematical models, and some presented their research with a poster. The article presents research by students on waste issues and global warming. The first research analyzes the amount of municipal waste in kilograms per capita in Slovenia in the years from 2014 to 2020, where it was found that the amount of waste is increasing linearly. To stop this trend and reduce the amount of waste, some tips are given, such as buying unpackaged products, reuse, separation, composting, recycling... Another study on global warming shows an increase in annual average air temperature in Ljubljana in the period from 2010 to 2020 and a description of solutions on both a personal and global level. The students have created numerous presentations with the added value of being aware of ecological problems, pointing at their solutions, being grateful for all the natural resources of our planet and being respectful of it.

KEYWORDS: ecology, mathematics, waste, global warming, secondary school.

OBRAVNAVA EKOLOŠKIH VSEBIN PRI VZGOJNEM DELU V DIJAŠKEM DOMU TABOR

POVZETEK

Odnos, ki ga imamo posamezniki in družba do okolja, bo v prihodnje odločilno vplival na pogoje in način življenja. Študij, ki bi izključevale vpliv človeka na spreminjanje okolja, v resni literaturi skoraj ni več mogoče najti. Odnos posameznika do družbenih, torej tudi okoljskih vprašanj se začne graditi z vzgojo v primarni družini, nato pa pomembno vlogo pri tem prevzamejo tudi vzgojno-izobraževalne ustanove. Pridobljene vzorce vedenja in prepričanj se pozneje v življenju težje spreminja. V Dijaškem domu Tabor smo dokaz, da se je mogoče ekoloških vsebin dotakniti na različnih področjih vsakdanjega življenja, npr. pri prehrani, obleki in rabi energije, kjer skozi poučne, zabavne, ustvarjalne, delovne, pogovorne in humanitarne delavnice dijakom privzgapamo odgovoren odnos do okolja in jih spodbujamo h kritičnemu mišljenju o odnosu do okolja danes in v prihodnosti. V prispevku predstavljam več primerov dobrih praks obravnave ekoloških vsebin pri vzgojnem delu z dijaki v dijaškem domu. Predstavljene so ponovna uporaba oblek, pohištva, izdelava trajnostnih izdelkov na ustvarjalnih delavnicah in aktivnosti, povezane s skrbjo za zmanjševanje in ločevanje odpadkov .

KLJUČNE BESEDE: dijaški dom, ekologija, vzgoja, dijak, vzgojitelj.

THE DISCUSSION OF ECOLOGICAL CONTENTS AT EDUCATIONAL WORK IN BOARDING SCHOOL TABOR

ABSTRACT

The attitude of each individual as well as the society as a whole towards the environment will decisively affect our living conditions and our lifestyle. Studies which are excluding the human impact on the changing environment almost cannot be found in serious literature. Each individual's attitude towards social and therefore also environmental questions starts to shape with the upbringing in the primary family, then educational institutions take up an important role later on. Acquired behavioural patterns and beliefs can hardly be changed. At Boarding school Tabor, we are proof that it is possible to deal with ecological contents in various areas of everyday life, e.g. in diet, clothing and energy use. Through educational, entertaining, creative, active, conversational and humanitarian workshops we are educating students to have a responsible attitude towards the environment and we are encouraging them to critically think about our attitude towards the environment today and in the future. In this paper, several examples of good practices are presented on how ecological contents are addressed in educational work with students in the boarding school. Mentioned are the reuse of clothing and furniture, the production of sustainable products in creative workshops and activities related to the care of reducing and separating waste.

KEYWORDS: boarding school, ecology, education, student, educator.

LOKALNA PRIDELAVA HRANE KOT DEL POKLICNE ORIENTACIJE

POVZETEK

V današnjem času se vedno bolj zavedamo pomena lokalno pridelane hrane. To so živila, ki so pridelana in predelana v domačem okolju. Sodobne zdravstvene smernice priporočajo uživanje sezonske zelenjave in sadja iz lokalnega okolja. Z lokalno hrano prispevamo k skrbi za okolje in pomagamo lokalnemu kmetijstvu in gospodarstvu. Našo šolo obiskujejo učenci z motnjo v duševnem razvoju. Učenci, ki zaključijo osnovno šolo s prilagojenim programom, lahko šolanje nadaljujejo praviloma le v nižjem poklicnem izobraževanju. Pri poklicnem izobraževanju in kasnejšem zaposlovanju imamo v mislih skladnost med sposobnostmi posameznika, njegovimi interesi in željami ter možnostmi, ki jim jih ponuja okolje. Pri učencih s posebnimi potrebami je pričakovati več težav pri uvidu lastnih zmožnosti ter usklajevanju le-teh z okoljem. Vsebine s področja ekonomije samooskrbe so učencem z motnjo v duševnem razvoju blizu, saj jih je mogoče konkretizirati in prilagoditi na različne ravni zahtevnosti. Omogočajo pa tudi vsebinski okvir znotraj katerega lahko učencem dodatno pomagamo pri poklicni orientaciji. Prispevek predstavi tiste dejavnosti, ki učencem omogočajo, da se seznanijo z možnostmi samooskrbe, hkrati pa v praksi podrobneje predstavi poklic obdelovalec lesa ter poklic pomočnik v biotehniko in oskrbi, ki sta učencem najbolj aktualna, zanimiva in dosegljiva. Glavni cilj pri tem je ugotoviti, kako z vzpostavitvijo aktivnejše vloge učenca v procesu načrtovanja pridelave, pridelovanja in uporabe hrane razviti odgovornejši odnos do hrane. Učenci so na ta način pridobili veliko uporabnih znanj in izkušenj, ki jih lahko vnovčijo pri nadaljnji poklicni poti.

KLJUČNE BESEDE: učenci z lažjo motnjo v duševnem razvoju, poklicna orientacija, ekonomija samooskrbe, odnos do hrane.

LOCAL FOOD PRODUCTION AS PART OF VOCATIONAL ORIENTATION

ABSTRACT

Nowadays, we are increasingly aware of the importance of locally grown food. These are foods that are grown and processed in the home environment. Modern health guidelines recommend eating seasonal vegetables and fruits from the local environment. With local food we contribute to the care of the environment and help local agriculture and the economy. Our school is attended by pupils with intellectual disabilities. As a rule, pupils who complete primary school with an adapted program, can continue their education only in lower vocational education. In vocational education and subsequent employment, we have in mind the coherence between the individual's abilities, his interests and the possibilities of desires offered by the environment. Pupils with special needs are expected to have more difficulty in understanding their latest abilities and coordinating them with the environment. Content in the field of self-care economics is close to pupils with intellectual disabilities, as it was possible to concretize and adapt it to different levels of difficulty. They also provide a content framework within which we can additionally help pupils with vocational orientation. The paper presents those activities that enable pupils to get acquainted with the possibilities of self-sufficiency, and at the same time presents the profession of woodworker and the profession of assistant in biotechnology and care, which are most relevant, interesting and accessible to pupils. The main goal is to find out how to develop a more active role of the pupil in the process of planning the production, cultivation and use of food to develop a more responsible attitude towards food. In this way, the pupils gained a lot of useful knowledge and experience, that they can use in their future careers.

KEYWORDS: pupils with mild intellectual disabilities, vocational orientation, self-care economics, attitude towards food.