



BISTROUM

**ZBORNİK
POVZETKOV
RAZISKOVALNIH
NALOG**

v slovenskem in
angleškem jeziku

**27. REGIJSKO SREČANJE MLADIH RAZISKOVALCEV
SPODNJEGA PODRAVJA IN PRLEKIJE V LETU 2019**

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KAZALO



MLADINSKEMU RAZISKOVALNEMU DELU NA POT POVZETKI RAZISKOVALNIH NALOG OSNOVNOŠOLCEV IN SREDNJEŠOLCEV	6 8
ASTRONOMIJA ALI FIZIKA	9
Se reakcijski čas z odraščanjem otrok spreminja?	10
BIOLOGIJA	12
So mokarji (od)rešitelji sodobnega časa?	13
Vpliv gnojil na rast rastlin	14
O vedenju pri nevretenčarjih	15
EKOLOGIJA Z VARSTVOM OKOLJA	16
Kaj pa druge vrste?	17
Nakupovalno vrečko izbiram, naravo podpiram	18
Divji oprasovalci - nadležne ali koristne žuželke?	20
Plastična embalaža v šolski kuhinji in trgovina brez embalaže	22
ETNOLOGIJA	24
Šolar v šoli Sv. Lenarta pri Veliki Nedelji v sredini 20. stoletja	25
KEMIJA ALI KEMIJSKA TEHNOLOGIJA	26
Kozmetika z dotikom narave	27
Inhibicija korozije cinka z azoli v okolju natrijevega klorida	28
PSIHOLOGIJA ALI PEDAGOGIKA	30
Ali je razvitost hemisfer povezana z učnimi stili?	31
Ustvarjalnost in nadarjenost osnovnošolskih učencev na tehničnem področju	32
Glasba - najboljše zdravilo?	33
Razgibani možgani	34
Vpliv vzgoje na odraščajoče otroke nekoč in danes	36
Mediacija - popotnica pri reševanju sporov	37
EKONOMIJA ALI TURIZEM	38
Velika Nedelja na turističnem zemljevidu Slovenije	39
Mladi in turizem v Ormožu	40
Kaj nas greje najceneje - kako se ogrevamo v KS Zgornja Ložnica	41
GEOGRAFIJA ALI GEOLOGIJA	42
Pohorski lonec kamnin	43
Degradirana območja v občini Kidričevo	45
SLOVENSKI JEZIK ALI KNJIŽEVNOST	46
Ko Cankar sreča Ingoliča	47
FILOZOFIJA ALI SOCIOLOGIJA	48
Uporaba ličil na OŠ Gustava Šiliha Laporje	49
Odnos do invalidov v naši družbi	50
Prijetna starost in čim daljša kakovostna leta: zadovoljevanje socialnih potreb starostnika nekoč in danes	51
Brezdomstvo v današnji družbi	52

ZGODOVINA ALI UMETNOSTNA ZGODOVINA

Osamosvojitve Slovenije	54
Grad Turnišče razliva svoje sledi	55
»Nič ni boljšega kot mir!« je rekel moj dedi	56
Makole ali Turčija	57
	59

INTERDISCIPLINARNA PODROČJA

Kamor gre še cesar peš	60
Žvečiti ali ne, to je zdaj vprašanje	61

DRUGA PODROČJA

Homo sedens	62
Gibalnica za vse	63
Glasba - tekmovalna disciplina na olimpijskih igrah	64
Naravni sladoleđ	65
Od kmetije do tržnice	66
Analiza ŠVK in prehranske navade v 3. in 6. razredu na 2. OŠ Slovenska Bistrica	67
Proizvodnja in uporaba biooglja	68

APLIKATIVNI INOVACIJSKI PREDLOGI IN PROJEKTI

Stop – pirotehnika	69
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ELEKTROTEHNIKA, ELEKTRONIKA IN ROBOTIKA

Mi plešemo	70
Izvedba svetlobnih efektov z Arduino mikroprocesorskim sistemom	71

RAČUNALNIŠTVO ALI TELEKOMUNIKACIJE

Moja soba v širnem svetu - kaj vse objavljamo na družabnih omrežjih	72
Računalniška in internetna pismenost osnovnošolcev	73

TEHNIKA ALI TEHNOLOGIJA

Tube fon	74
Izdelajmo sami: aparat za sladkorno peno	75
Vpliv glasbe na tehniško ustvarjalnost	76

UVRSTITVE NA DRŽAVNEM SREČANJU MLADIH RAZISKOVALCEV SLOVENIJE

OSNOVNE ŠOLE

SREDNJE ŠOLE

ABECEDNI SEZNAM OSNOVNIH ŠOL

ABECEDNI SEZNAM MLADIH RAZISKOVALCEV OSNOVNIH ŠOL

ABECEDNI SEZNAM MENTORJEV OSNOVNIH ŠOL

ABECEDNI SEZNAM SREDNJIH ŠOL

ABECEDNI SEZNAM RAZISKOVALCEV SREDNJIH ŠOL

ABECEDNI SEZNAM MENTORJEV SREDNJIH ŠOL

ABECEDNI SEZNAM REGENZENTOV

IZVEDBO PROJEKTA SO OMOGOČILI

54

55

56

57

59

60

61

62

64

65

66

67

68

69

71

72

74

75

76

77

79

80

81

83

84

85

86

88

90

91

92

93

94

97

99

99

100

100

101

Mladinskemu raziskovalnemu delu na pot

doc. dr. ŠTEFAN ČELAN, direktor ZRS Bistra Ptuj



Foto: Črtomir Goznik

Namen nas, ki se ukvarjamo s projektom uvajanja mladih v znanost je, da bi v mladih zadržali naravno otroško vedoželjnost. Zato pri mladinskem raziskovalnem delu ne gre v prvi vrsti za odkrivanje novih teoretičnih spoznanj, gre bolj za to, da učenci in dijaki spoznajo principe in metode raziskovalnega dela. Tako kot mora mladi zidar spoznati principe in metode dela, če želi zgraditi stolpnico, jih mora tudi mladi znanstvenik, če želi nekoč posegati po rezultatih svetovno primerljive znanstvene odličnosti.

Kljub navidezni neizkušenosti, razpolagajo mladi raziskovalci z ogromnim potencialom vedoželjnosti in neobremenjenega in »neukalupljenega« razmišljanja. Vse te lastnosti pa so potrebne, da bodo nekoč dosegli vrhunske znanstveno-raziskovalne rezultate. Z udeležbo na različnih prireditvah posvečenim znanstveno-raziskovalni dejavnosti si gradijo socialno mrežo bodočih partnerjev, ki jo pri resnem delu še kako potrebujejo.

Ob mladih raziskovalcih ne smemo pozabiti na vlogo mentorjev, ki so v številnih primerih ključni mejnik za njihov nadaljnji razvoj. Med najpomembnejše kompetence mentorja sodi, da med množico mladih prepozna tiste z največjo željo in kompetencami za raziskovalno delo. Nadalje mora mentor znati postavljati visoke cilje in kriterije, hkrati pa mora paziti, da niso previsoki in bi v mladih raziskovalcih uničili motivacijo. Nenazadnje pa mora med mentorjem in raziskovalcem obstajati medsebojno zaupanje in spoštovanje, tudi v tistih trenutkih, ko ne gre vse tako, kot je bilo načrtovano. V teh trenutkih je mentorjeva vloga neprecenljiva.

Vsem dosedanjim mladim generacijam in njihovim mentorjem čestitam za prehojeno pot z željo, da bi na njej vztrajali še na mnoga leta.

Ptuj, maj 2019

doc. dr. Štefan ČELAN



POVZETKI

RAZISKOVALNIH NALOG

OSNOVNOŠOLCEV IN SREDNJEŠOLCEV



ASTRONOMIJA
ALI FIZIKA

Regijsko srečanje mladih raziskovalcev
Spodnjega Podravja in Prlekije:
2. OŠ Slovenska Bistrica,
22. marec 2019

Se reakcijski čas z odraščanjem otrok spreminja?



Raziskovalec: Luka Urban Kitek

Mentor: Jure Cvahte

Šola: Osnovna šola Gustava Šiliha Laporje

Recenzent: dr. Dušan Klinar

Povzetek:

Reakcijski čas je čas, ki preteče od trenutka, ko človek zazna določen dražljaj, pa do trenutka, ko se na ta dražljaj odzove. S situacijami, kjer je reakcijski čas pomemben, se v vsakdanjem življenju pogosto srečujemo. Kratek reakcijski čas je bil skozi zgodovino eden od pomembnejših dejavnikov preživetja, saj nam je omogočil, da smo dovolj hitro odreagirali na življenjsko nevarne situacije. Danes se srečujemo s takšnimi situacijami v prometu (vožnja avtomobila, kolesa ...), na delovnem mestu (gradbeništvo, gozdarstvo, delo s stroji, ...) , doma (umik dlani iz vroče površine ali od žice pod električno napetostjo ...), pomemben pa je tudi pri drugih dejavnostih (športu, plesu, igranju družabnih iger, računalniških igrac ...).

V raziskovalni nalogi sem uporabil eksperimentalno metodo, metodo obdelave podatkov z računalniškim programom Excel in metodo dela z viri. 112 učencev naše šole od 1. do 9. razreda sem testiral z dvema preprostima poskusoma. Pri prvem poskusu so lovili padajoče ravnilo, pri drugem pa so ustavili štoparico po določenem trenutku. Vsak poskus je učenec opravil 3-krat. Za srednjo vrednost meritev pri posameznem učencu sem izbral mediano. Reakcijski čas učencev sem primerjal glede na starost, spol ter njihovo gibalno učinkovitost. Podatke za gibalno učinkovitost sem pridobil s pomočjo športnovzgojnih kartonov.

Na podlagi obdelave pridobljenih podatkov sem ugotovil, da se s staranjem učencev reakcijski čas krajša, da imajo fantje v povprečju krajši reakcijski čas kot punce ter da imajo boljši športniki v povprečju krajši reakcijski čas.

V svoji raziskovalni nalogi vidim še mnogo možnosti za izboljšave. Prva je povečanje števila učencev v raziskavi in bolj enakomerna porazdelitev po spolu. Druga je povečanje števila meritev pri vsakem učencu. Tretja je testiranje učencev ob približno enakem času v dnevnu, saj so po pouku bolj utrujeni in manj zbrani kot pred poukom.

Na področju reakcijskega časa bi lahko raziskal še odvisnost reakcijskega časa od vrste dražljaja (svetlobni, zvočni, fizični ...). Pri svetlobni vrsti dražljajev bi lahko raziskal, če je reakcijski čas odvisen tudi od barve svetlobe, ki pride v naše oko. Prav tako bi lahko raziskal, kako na reakcijski čas vplivata utrujenost in zbranost učencev.

Summary:

Reaction time is the time that passes from the moment a person perceives a certain stimulus until the moment he/she reacts to that stimulus. In everyday life, we often face situations where reaction time is important. Short reaction time has always been one of the most important factors of survival, because it enabled us to react quickly to life-threatening situations. Today, we face such situations in traffic (when driving a car, riding a bike,...), at work (in construction, forestry or work with machinery,...), or at home (pulling a hand away from a hot surface or live wire,...). Short reaction time is also important in other activities (in sport, dancing, playing board games, computer games,...). In this research paper I used the experimental method, the data analysis method (Excel programme) and the method of using resources. I performed two simple experiments, testing 112 students from our school, from 1st to 9th grade. In the first experiment, they had to catch a falling ruler; in the second, they had to stop a stopwatch at a certain moment. Each student performed each experiment three times. Median value was used as the middle value for each student. I compared reaction times of students according to their age, gender and efficiency of movement. The data for efficiency of movement were obtained from the students' physical education test results.

Based on the data analysis, I discovered that the reaction time decreased with age, that on average boys have shorter reaction times than girls, and that athletes also on average have shorter reaction times than students who do not practice sport.

I see a lot of room for improvement of my research. Firstly, the number of students could be increased, and gender distribution could be made more equal. Secondly, the number of measurements performed with each student could also be increased. Thirdly, the students could have been tested at approximately the same time of day, since they are more tired and less focused after classes than before classes.

In studying reaction times, I could also research the dependence of reaction time on the type of stimuli (light, sound, physical stimuli,...). With regard to light stimuli, I could explore if the reaction time depends on the colour of the light that comes into our eye, as well as how tiredness and concentration influence reaction times

BIOLOGIJA

So mokaerji (od)rešitelji sodobnega časa?



Raziskovalka: Karla Rap

Mentor: Barbara Čretnik

Šola: Osnovna šola Gustava Šiliha Laporje

Recenzent: Mitja Lah

Povzetek:

Namen moje raziskovalne naloge je bil ugotoviti, ali drži trditev, da se lahko ličinke mokaerjev hranijo s stiroporom in preživijo. Želela sem ugotoviti, ali lahko mokaer poleg moka »kompostira« plastične vrečke, stiropor, škrobne vrečke, karton in žagovino ter preživi. Uporabila sem ličinke velikega mokaerja. Naučila sem se gojiti mokaerje in izvedla dva eksperimenta. Pri prvem eksperimentu sem ugotovila, da se ličinke mokaerjev in hrošči hranijo z žagovino, zato so bili rezultati boljši kot pri drugem poskusu brez žagovine. Ugotovila sem, da se mokaerji hranijo z vsemi naštetimi snovmi in vsaj večina mokaerjev preživi en mesec. Mokaerji "hrano" zaužijejo in jo s pomočjo simbiotskih bakterij pretvorijo v ogljikov dioksid in v biorazgradljive iztrebke. Zanimalo me je, ali prebavijo škrobne in plastične vrečke, predvsem zadnje so težava sodobnega časa. Zanimivo je, da mokaerji res prebavijo stiropor in plastične vrečke, a je smrtnost živali višja, kot če bi se hranili z moka. Ugotovila sem, da hrana vpliva na hitrost razvojnega kroga mokaerjev. Razvoj/preobrazba živali, ki so bile hranjene s škrobnimi ali plastičnimi vrečkami oz. s stiroporom, poteka počasneje. Mokaerji so že prilagojeni na prehranjevanje z umetnimi polimeri, kot so stiropor in plastične vrečke. Ker pojedjo zelo malo, večjih težav verjetno ne bi povzročali. Ne vem pa, kakšne bi bile posledice pri njihovih plenilcih v prehranjevalnem spletu. Bi lahko mokaerji v prihodnosti igrali ključno vlogo pri zmanjšanju odpadkov? Bi lahko bili (od)rešitelji sodobnega časa? Res je možno, a malo verjetno, ker potrebujejo ustrezne življenjske pogoje, ker zelo počasi »kompostirajo« in imajo naravne sovražnike. Zanimivo bi bilo poizkus izvajati vsaj pol leta ali celo 2 generaciji zapored. Preizkusili bi lahko, ali iztrebki mokaerjev res izboljšajo rast rastlin. Menim, da če želimo živeti zdravo in ohraniti planet z veliko življenjsko pestrostjo, bo v sodobnem času potrebno najti ravnovesje med našimi željami, potrebami in naravo.

Summary:

The purpose of my research was to confirm or decline the claim that larvae mealworms can stay alive if they are fed with polystyrene. I wanted to discover if it is possible for worms to compost plastic bags, polystyrene, starch bags, cardboard and sawdust and still survive. I used big larvae mealworms and learned how to breed them and within this, I made two experiments. I found out that if the worms eat sawdust, the results are better than if they do not. The results showed that most of worms survive for one month, even if they eat all these materials. They consume the material and digest it into carbon dioxide and decomposable droppings, with the help of symbiotic bacteria. The main question here was what happens with starch bags and plastic bags-one of the biggest problems nowadays. Do these worms digest them or not? Furthermore, I wanted to know if these worms really digest these materials and if the mortality is higher because of this. Interestingly, the mealworms really digest styrofoam and plastic bags, but the mortality of animals is higher than if they are fed with flour. I noticed that food influences the speed of the developmental cycle of mealworms. Transformation of animals that are fed with starch or plastic bags or with the styrofoam, is slower. The mealworms are already adapted to eating artificial polymers such as styrofoam and plastic bags, and because they eat very small amount of food, this raw materials probably do not cause them major problems. On the other hand, I do not know what the consequences is for their predators in the eating web. So, the question here is whether mealworms can play a key role in reducing waste in the future? Can they be our savers? This is probably less likely, because we need suitable life conditions for these worms to grow (no predators). It would be interesting to do this experiment for at least half a year or even in a 2-generation sequence. We could try out if the droppings of worms really improve the growth of plants. In my opinion, if we want to live healthy and to preserve a planet with such a great variety of life, we will need to find a balance between our and nature's needs.

Vpliv gnojil na rast rastlin



Raziskovalka: Nika Rajzman

Mentor: Luka Husu

Šola: 2. osnovna šola Slovenska Bistrica

Recenzent: Mitja Lah

Povzetek:

V tej raziskovalni nalogi sem raziskovala vpliv gnojil na rast rastlin. Primerjala sem umetna gnojila z naravnimi oziroma ekološkimi. Poskus sem opravljala na solati, ki sem jih gojila s pomočjo hidroponične metode Kratky. Primerjala sem maso zelenih delov, število listov in dolžino korenin med solatami, ki so rasle v različnih hranilnih raztopinah. Razlika med solatami, ki so rasle v hranilni raztopini z vsemi potrebnimi hranili in ostalimi raztopinami, je bila izrazita. Vse solate, ki so rasle v raztopini naravnih oziroma ekoloških gnojil, so kazale znake pomanjkanja določenih elementov. Opazna je bila zavrta rast tako korenin kot zelenih delov, nekatere rastline so se med poskusom posušile.

Summary:

In this research project I investigated the effects of fertilizers on plant growth. I compared artificial and natural fertilizers. I experimented on lettuces, which were growing in hydroponics jars - Kratky method. I compared the mass of green parts, the number of leaves and the length of roots among lettuces, which grew in different nutrient solutions. The difference among lettuces that grew in a nutrient solution with all necessary nutrients and other solutions was significant. All lettuces that grew in the solution of natural or organic fertilizers showed signs of nutrition deficiency. The growth of both roots and green parts was noticeably slower, some plants died during the experiment.

O vedenju pri nevretenčarjih



Raziskovalec: Gaj Železnik

Mentor: Davorin Horvat

Šola: Osnovna šola Videm

Recenzent: Mitja Lah

Povzetek:

Vedenje je odziv nekega organizma na dražljaj. Na osnovi eksperimentalnega opažanja smo vedenje merili pri vrsti vietnamski paličnjak (*Medauroidea extradentata*). Rezultati naloge so pokazali na spremembo v vedenju, in sicer pri dodajanju UV-svetlobe. Presenetila me je tudi njihova mirnost ob pomanjkanju svetlobe, čeprav so nočne živali.

»Ali lahko pobeg na varno uporabimo v vsakdanjem življenju tudi ljudje?« Nedvomno ima tudi *Homo sapiens* s. podobne vzorce kot številni drugi organizmi. Študija, ki je bila izvedena, kaže na prilagajanje organizmov v ekstremnih okoliščinah. Živali se v strahu pred nevarnostjo umaknejo na varno. Pri tem uporabijo različne strategije, ki pomagajo živali, da si v neizprosni okolju poveča možnost preživetja.

Ugotovil sem, da nekatere osebkje UV-svetloba privlači, nekateri pa se za njo niti ne zmenijo. Umetno okolje pa privede do tega, da se organizmi obnašajo drugače, kot se v naravi.

Summary:

Behavior is the response of an organism to the stimulus. On the basis of experimental observation, the behavior of Vietnamese stick insect (*Medauroidea extradentata*) was measured. The results of the task showed a change in behavior, namely when adding UV light. I was surprised by their calmness in the absence of light, even though they are night animals. "Can people use escape on the safely place in everyday life?" Undoubtedly, there are *Homo sapiens* with similar patterns as many other organisms. The study, which was carried out, indicates the adaptation of organisms in extreme circumstances. Animals are withdrawn safely in fear of danger. In doing so, they use various strategies that help animals to increase the survival potential in an unbearable environment. I have found that some individuals are attracted to UV light and some do not even seem to agree with it. The artificial environment, however, leads to the fact that the organisms behave differently than in nature.



Kaj pa druge vrste?

Raziskovalka: Špela Gajšt

Mentorica: Janja Kitak

Šola: Osnovna šola Majšperk

Recenzent: dr. Štefan Čelan

Povzetek:

Izumiranje živalskih vrst v biosferi je prisotno že od nekdaj, saj so skozi evolucijo vrste, ki niso bile prilagojene na svoje življenjsko okolje, preprosto izumrle, nadomestile pa so jih gensko izpopolnjene vrste, ki so bile pripravljene na izzive in plenilce v njihovem življenjskem okolju. Vendar pa ta izumrtja niso bila tako pogosta, kot jih beležimo danes, prav tako pa so naravnemu okolju koristila in ne škodila. Glavni povzročitelj za tako pogosto izumiranje živih bitij dandanes pa je seveda človek, ki bitja iztreblja neposredno z ubijanjem, ali pa posredno z uničevanjem in onesnaževanjem njihovega življenjskega okolja. Največkrat se sploh ne zavedamo, kako zelo pripomoremo k uničevanju živih bitij, saj lahko že navadna plastična vrečka, ki jo odvržemo v morje, ubije delfina ali želvo, ki se vanjo zaplete in tako zaduši. Morda si mislimo, da se to ne dogaja pri nas, temveč na drugem koncu sveta, ter da na izumiranje živih bitij tako rekoč nimamo vpliva, kar pa je seveda čista neresnica. Tudi v Sloveniji živi ogromno živali, ki so ogrožene in jim grozi izumrtje, pa tega morda sploh ne opazimo, zato sem se odločila, da bom to problematiko raziskala. S pomočjo ankete sem preverila ozaveščenost tukaj živečih ljudi, ter njihovo mnenje o tej problematiki. V anketo je bilo vključenih več različnih generacij.

Summary:

The extinction of animal species in the biosphere has always been present, since throughout the evolution there were numerous species that were not adapted to their living environments, so they simply became extinct. They were replaced by genetically improved species that were prepared for challenges and predators in their living environments. However, those extinctions were not as common and harmful as they are today and they were even useful for the natural environment. The main cause for the frequent extinctions of living creatures nowadays are of course humans, who exterminate them directly by killing or indirectly by destroying and polluting their natural habitats. Most of the time we do not even realize how much we contribute to the extermination of living creatures, because even a small plastic bag that is thrown into the sea can kill a dolphin or a turtle that is stuck in it and drowns. We may think that this is not happening in our country but on the other part of the world and we have no influence on the extinction of living beings, but this is a total lie. There are many endangered animals threatened with an extinction in Slovenia and we do not even notice that. Therefore, I decided to research this issue. I checked the awareness of the people living here and their opinion on this problem with the help of the survey that included different generations.

EKOLOGIJA Z VARSTVOM OKOLJA

Nakupovalno vrečko izbiram, naravo podpiram



Raziskovalci: Luka Podvršnik, Maj Vehovar, Lan Žnidar

Mentorica: Asja Perhoč

Šola: Osnovna šola Pohorskega odreda Slovenska Bistrica

Recenzent: dr. Štefan Čelan

Povzetek:

K raziskovanju nas je spodbudila Uredba Ministrstva za okolje in prostor o ravnanju z embalažo in odpadno embalažo. V trgovinah smo namreč zasledili letake, ki opisujejo zahtevo o prepovedani uporabi lahkih plastičnih nosilnih vrečk, ki bo začela veljati januarja 2019. Letake smo dobili tudi v šolo in se z zanimanjem poglobili v idejo ter si zastavili vprašanje zakaj prepoved. Ali ljudje res tako množično uporabljamo plastične vrečke? Katere vrečke so najpogosteje v uporabi? Kaj se dogaja z vrečkami, ko jih zavržemo? Ta in še mnoga druga vprašanja so nas usmerila k ideji, da izdelamo raziskovalno nalogo na to temo. Naš glavni cilj je bil raziskati vrste vrečk, ki jih trenutno še ponujajo v supermarketih ter ugotoviti bistvene razlike med njimi – koliko se posamezna vrečka razgradi oziroma razpade v pol leta? Kako vplivajo razgradnji produkti vrečke na rast rastlin? Kaj se dogaja z vrečkami ob sežigu le-teh, kako trpežne so, kako hitro se razgradijo ob prisotnosti hladne in vroče vode ter kaj se zgodi z vrečkami, če so izpostavljene kislemu oziroma bazičnemu okolju. Za raziskovanje smo tako uporabili štiri vrste vrečk – plastične, papirnate, vrečke iz blaga in bio vrečke. Pogovarjali smo se tudi z gospodom Denisom Vrečkom, ki v svojem podjetju proizvaja različne vrste vrečk. Zanimalo nas je, kako proizvodnja vrečk vpliva na okolje ter koliko so v proizvodnji seznanjeni z uporabo in predelavo vrečk. Na šoli smo izvedli delavnice izdelave nakupovalnih vrečk iz odpadnega blaga oziroma starih majic in papirnatih (darilnih) vrečk. S tem smo želeli predati zavedanje, da je tudi pri izdelavi vrečke pomembna reciklaža.

Summary:

A Directive of Ministry of the Environment and Spatial Planning encouraged us to do the research on dealing with package and waste package. In the shops we have seen some leaflets which described the demand for stopping the use of light plastic carrying bags. This issue was going to be valid in January 2019. The same leaflets were also delivered to school, so our interest in the idea has increased. Hence the questions appeared: »Why the prohibition? Do people really use these plastic bags so massively? Which bags are mostly used? What happens with them when we throw them away?« Those were among many other questions which directed us to the idea for our research thesis. The main goal in the research was to explore the types of bags which are still being offered in our supermarkets and to discover the main differences among them – to what extent does the bag disintegrate in six months period; how do the disintegrated parts of the bag influence on the growth of plants; what happens when we burn them; how durable they are; how quickly they fall apart within the cold or hot water and finally what happens when they are exposed to acid or basic suspension. In our research we focused on four types of bags – plastic, paper, cloth and eco bags. We also talked to Mr Denis Vrečko whose company manufactures many different types of bags. We wanted to find out what influence does the manufacturing of bags have on the environment, as well as if the manufacturers are aware of the usage and reuse of the bags. At our school we have organized workshops where the students made shopping bags from the waste cloth or old T-shirts or even from paper gift bags. Thus we wanted to deliver the awareness that while producing the bags recycling must be considered.

Divji oprraševalci - nadležne ali koristne žuželke?



Raziskovalca: Neža Lunežnik, Jernej Kosajnc

Mentorici: Katja Leva, ddr. Ana Vovk Korže

Šola: 2. osnovna šola Slovenska Bistrica

Recenzent: dr. Štefan Čelan

Povzetek:

Za raziskovalno nalogo z naslovom Divji oprraševalci – nadležne ali koristne žuželke smo se odločili zato, ker nas zanima okolje in vse kar je povezano z njim. Prav tako smo zelo »zeleno, ekološko« vzgojeni in nam je mar za naravo in odnos do nje. Želeli smo raziskati, kakšno vlogo imajo opráševalci, predvsem divji, v okolju, in koliko jih sploh poznamo. Predvsem smo želeli izvedeti, kakšen odnos do opráševalcev imajo naši vrstniki. Ker smo pri prebiranju literature spoznali, kako pomembni so opráševalci, smo se odločili, da jih v teoretičnem delu podrobneje predstavimo, predvsem pa smo dali prednost divjim opráševalcem. Med njimi smo posebej izpostavili čmrlje, za katere marsikdo meni, da so lene žuželke.

Želimo, da s pomočjo raziskovalne naloge učenci naše šole dodatno okrepijo spoštovanje do okolja in da v opráševalcih vidijo razlog, da lahko zaužijejo sadje ter zelenjavo. Prav tako želimo, da učenci spoznajo, da lahko sami in s pomočjo družine vplivajo na številčnost opráševalcev v svojem okolišju. Ker imamo učenci naše šole to srečo, da imamo svoj šolski vrt, smo želeli raziskati, kaj kot šola lahko naredimo, da bo šolski vrt v prihodnje bolj donosen. Odločili smo se, da bomo v empiričnem delu predstavili dva izdelka, ki smo ju naredili – čmrlnjak ter domovanje za čebele samotarke, saj naj bi število in raznolikost opráševalcev vplivalo na končno količino pridelka. Želeli smo pa tudi izpostaviti, da je misel, da so čmrlji lenuhi, čista neresnica.

Na začetku raziskovanja smo si postavili naslednje hipoteze.

Hipoteza 1: Predpostavljamo, da anketirani učenci poznajo pojem opráševanje.

Hipoteza 2: Domnevamo, da učenci znajo naštet vsaj enega opráševalca.

Hipoteza 3: Predvidevamo, da učenci menijo, da je čebela pomembnejša opráševalka kot čmrlj.

Hipoteza 4: Predpostavljamo, da učenci kot glavni razlog za ogroženost opráševalcev navedejo kmetijstvo.

Hipoteza 5: Domnevamo, da učenci kot glavno rešitev, ki bi pripomogla k povečanju opráševanja na šolskem vrtu, vidijo v bivališčih za čebele samotarke.

Hipoteza 6: Domnevamo, da učenci ne vedo, kakšen je čmrlnjak.

V teoretičnem delu smo najprej predstavili pojem opráševanje. V nadaljevanju smo opisali opráševalce, najprej medonosno čebelo, nato pa divje opráševalce – divje čebele, čmrlje, metulje ... Prav tako smo predstavili pomen opráševalcev, dejavnike, ki vplivajo na njihovo številčno zmanjševanje ter vidike, kako jih obvarovati. V zadnjem teoretičnem delu smo raziskovali zakonodajo o varovanju opráševalcev.

V raziskovalnem delu smo s pomočjo anketnega vprašalnika skušali potrditi ali ovreči zgoraj omenjene hipoteze. Anketni vprašalnik so reševali učenci osmega in devetega razreda naše šole. Prav tako smo opravili dva intervjuja. Enega smo preko elektronske pošte izvedli z odličnim poznavalcem čmrljev, dr. Danilom Bevkom, drugega pa s čebelarjem Maksimiljanom Prahom, takrat ko smo obiskali čebelarški center v Slov. Bistrici.

S pomočjo anketnega vprašalnika smo ugotovili, da učenci poznajo pojem opráševanje, saj so ga v večini slišali v šoli. Vedo, kaj ta pojem pomeni. Prav tako v večini poznajo vsaj enega opráševalca. Smo pa ugotovili, da ne vedo, da kranjska čebela oziroma ne spada v skupino divjih opráševalcev. Velika večina učencev v svojem okolju nima domovanj za divje opráševalce, kot so čmrlnjaki, hotel za žuželke, domovanja za čebele samotarke. Večina jih niti ne ve, kako naj bi čmrlnjak izgledal. So pa predlagali, da bi na šolski vrt postavili čmrlnjake, nasadili cvetlično gredo z medonosnimi rožami ter pustili del travnate površine nepokošene vse do jeseni.

Želimo si, da bodo naši čmrlnjaki in domovanja za čebele samotarke kmalu naseljeni, hkrati pa upamo, da bomo lahko v naslednjem šolskem letu nadaljevali z raziskavo, da dejansko ugotovimo, ali se je število opráševalcev na šolskem vrtu povečalo in če je vplivalo na donos pridelka.

Summary:

We chose the title Wild Pollinators – Useless or Useful Insects? because we are interested in the environment and everything connected with this topic. We believe that "green education for children" is important and that we should all develop a knowledge of, and respect for the environment. In our research project we wanted to present the role of pollinators and wild pollinators and how well we even know them. We were also interested what knowledge and attitude our peers have about pollinators. With the aid of the literature we identified the importance of pollinators and talked about this in more details in the theoretical part of our research project. The emphasis is on wild pollinators, especially bumblebees, which are considered to be very lazy animals.

We would like to raise our fellow students' awareness and respect for the environment and make them realize pollinators are the reasons why we can ingest fresh fruit and vegetables. We would also like for our students to think about how they and their families can contribute to the number of pollinators in their home garden. Because students of our school have the privilege of having their own school garden we thought about what we, as a school, can do to make our garden more profitable. In the empirical part of our research project we present two products we have made – a bumblebee house and the home for wild bees. We decided to make them because the number and variety of pollinators influences the amount of fruits in a garden. We also wanted to show that the statement about bumblebees being lazy animals is not at all true.

Here are the hypotheses of our research project.

Hypothesis 1: Students know what pollination is.

Hypothesis 2: Students can list at least one pollinator.

Hypothesis 3: Students believe that a honeybee is a more important pollinator than a bumblebee.

Hypothesis 4: Students think agriculture is the main reason for pollinators endangerment.

Hypothesis 5: Students are not aware of the solutions how to increase pollination in our school garden.

Hypothesis 6: Students do not know what a bumblebee house looks like.

In the theoretical part we introduced and explained the concept of pollination. Then we talked about pollinators – first the honeybee and then the wild pollinators (wild bees, bumblebees, butterflies ...). We also described the importance of pollinators and the factors which contribute to their massive reduction and also pointed out all the ways how to protect them.

In the empirical part we conducted a survey to prove the hypotheses true or false. The survey was given to our eighth and ninth graders. We also talked to dr. Danilo Bevk, a well known bumblebee expert and mr. Maksimilijan Prah a Slovene beekeeper.

The findings of the survey showed that students are familiar with the term pollination, mostly because they have learned about it at school. They were also able to name at least one pollinator, but we did find out that students believe that the Carnolian bee belongs to the group of the wild pollinators. Most of the students do not have wild pollinators homes in their home gardens – bumblebee house, insects hotels, home for wild bees. Most of the students do not even know how a bumblebee house looks like. Students suggested to put a bumblebee house in the school garden, plant a flowergarden with flowers that attract bees and also to leave one part of the grass unmowed until autumn.

We wish for bumblebee houses and homes for wild bees soon to be full of life and are already eager to continue our research next year to find out whether the number of pollinators and fruits in our school garden have increased.

Plastična embalaža v šolski kuhinji in trgovina brez embalaže



Raziskovalki: Iza Emeršič, Klara Janža Štrucl

Mentorica: Renata Sužnik

Šola: Osnovna šola Mladika

Recenzent: dr. Štefan Čelan

Povzetek:

Vsa živa bitja že od pradavnine živimo v sožitju in odvisnosti od narave. S sodobnim in hitrim načinom življenja smo ljudje postali vse bolj potrošniški in manj odgovorni do narave.

Opazamo, da kopičenje odpadkov predstavlja vse večji okoljski problem.

Z raziskovalno nalogo sva želeli ugotoviti, koliko plastičnih odpadkov v okolje prispeva naša šolska kuhinja. Zato sva štiri tedne tehtali plastične odpadke, ki so nastali v kuhinji. Ugotovili sva, da v štirih tednih šolska kuhinja prispeva 82,4 kg plastičnih odpadkov, kar je primerljivo s količino plastičnih odpadkov na Slovenca letno.

Posledično naju je zanimalo, če starši naših učencev poznajo trgovino brez embalaže in če bi opravljali nakupe v njej. Ugotovili sva, da večina anketiranih pozna trgovino brez embalaže, in bi v njej tudi opravljala občasne nakupe. Izvedli sva intervju z ravnateljem naše šole, saj naju je zanimalo, ali predstavlja nabava živil brez embalaže ali s povratno embalažo večjo oviro v šoli. Ravnatelj nama je predstavil, da je to precejšnja birokratska ovira, bilo bi pa vsekakor smiselno za okolje in za zmanjšanje stroškov odvoza smeti.

Z vodjo kuhinje sva opravili razgovor o delu v kuhinji z živili, ki bi bila pakirana v povratno embalažo. Predvideva, da pri delu ne bi bilo večjih težav, nekateri načini dela bi se morali prilagoditi ali spremeniti.

Županjo našega kraja sva povprašali o ideji trgovine brez embalaže v našem kraju. Povedala je, da je seznanjena s trgovino brez embalaže in, da se bom kot županje mesta Ptuj zavzemala za odprtje trgovine na Ptuju. Želi, da bi trgovina bila v starem mestnem jedru, a bi zaradi frekvenca kupcev bilo bolj smiselno, če bi trgovina bila v večjih nakupovalnih centrih, ali pa znotraj že obstoječih trgovin.

Na podlagi raziskave sva iskali izboljšave, ki jih bova posredovali odgovornim na Ministrstvu za okolje in prostor in Ministrstvu za izobraževanje, znanost in šport.

Summary:

Ever since the ancient times, all living creatures lived in coexistence, depending on the nature.

With the modern way of life people became less considerate of the nature.

We noticed the piling of waste plastic is becoming a big environmental problem.

With this research paper we wanted to figure out, how much waste plastic our school contributes to the pollution of nature. That's why we decided to weigh all the waste plastic produced in the kitchen. The results show that in four weeks 82,4 kg of waste plastic is produced in our kitchen, which is comparable with the amount of waste plastic a citizen of Slovenia produces in a year.

We wanted to know if the parents of the students of our school are familiar zero waste shops, if they would purchase products from the shop, which would help lowering the amount of waste plastic in our city. The answers show that most of the respondents are familiar with zero waste shops and would like to purchase products from there.

We interviewed the principal of our school, because we wanted to know if purchasing supplies for the school kitchen in reusable packaging would present an obstacle to our school. The principal told us that it would most likely be bureaucratic obstacle, however it would be a smart economical move because the cost of garbage removal would be lower and it would reduce the amount of waste plastic endangering the environment.

We also interviewed the head of the school kitchen about working with supplies packed in reusable packaging. He suspects it would not cause any bigger complications, the workers would just have to adapt to the new system.

The mayor of our town was kind enough to take time and answer to our questions as well. We asked her about the use of plastic packaging in public institutions and about her thoughts on having a zero waste shop in our town. She told us that public institutions definitely produce a lot of waste plastic, so buying supplies in reusable plastic seems like a good idea to her. The mayor is familiar with zero waste shops and would like to have one in our town. She wishes for the shop to be in the old center of the town, however, considering the frequency of costumers, it would make more sense to open it in a bigger shopping center or in an already existing shop.

Based on the results of the research we searched for the improvements, which we will mediate to the ministry of environment and the ministry of education.

ETNOLOGIJA

Šolar v šoli Sv. Lenarta pri Veliki Nedelji v sredini 20. stoletja



Raziskovalci: Vanessa Vaupotič, Tjaša Kokol, David Stanič

Mentorici: Nina Žnidarič, Matejka Majcen

Šola: Osnovna šola Velika Nedelja

Recenzentka: Ines Bezjak

Povzetek:

V raziskovalni nalogi s področja etnologije smo s pomočjo šolskih kronik in pogovorov z informatorji najbolj slikovito in nazorno prikazali življenje šolarja ter odnos takratne družbe do šole v Sv. Lenartu pri Veliki Nedelji. Časovno smo se omejili na prvo polovico 20. stoletja. Analiza šolskih kronik sega že v leto 1925, medtem ko je večina informatorjev šolo obiskovala v 30-tih letih. S pomočjo hipotez, ki smo si jih zastavili, smo ugotavljali, koliko časa so takratni šolarji namenili šolskemu delu in kakšen je bil odnos staršev do šole. Zanimalo nas je tudi, kakšne kazni so učenci pri prekrških v šoli prejeli, kaj so se učili in kakšna oblačila za v šolo so imeli. Hipoteze smo s pomočjo analize nestrukturiranih intervjujev in šolske kronike med leti 1925 in 1946 ovrgli ali potrdili. Ugotovili smo, da so nekoč učenci hodili v šolo od ponedeljka do sobote. Doma za šolo niso porabili veliko časa. Učitelje so spoštovali, nekoliko so se jih tudi bali, še posebej pa jih je bilo strah duhovnikov. V primeru slabega oziroma neprimernega in nespoštljivega vedenja so bili kaznovani. Kazni so bile v fizični in tudi v pisni obliki. Poleg splošno izobraževalnih predmetov, so imeli tudi praktično izobraževalni pouk, kot so ročna dela, rokodelski in kmetijski pouk. Učna snov pri teh urah pouka se je navezovala predvsem na takratne obšolske obveznosti, ki so jih učenci morali opravljati tudi doma. Učenci so bili za v šolo skromno oblečeni. Navadno so imeli le en par oblačil; eno oblačilo, ki so ga nosili tudi k maši, drugo, pa so nosili doma. Ugotovili smo, da so naši intervjuvanci kljub vsem težavam radi obiskovali šolo in pouk.

Summary:

In this research paper, in the field of ethnology, we are describing life of a regarding pupil. We were able to do that and to describe the society's relation to school in Sv. Lenart pri Veliki Nedelji illustratively by looking into the school Chronicle and talking to informers. We are researching the time period of the first half of the 20th century. The analysis of school Chronicle dates back to 1925, while the majority of informers attended school in the 1930s. Based on our hypotheses, we were finding out how much time the pupils dedicated to school work in those days, and what was the parents' relation to school. We were also interested in the punishments, that pupils received for offence in school, what they learned and what kind of clothes they wore to school. Hypotheses were confirmed or refuted by analysing unstructured interviews and school Chronicle in years 1925 – 1946. We found out, that pupils attended school from Monday to Saturday and that they didn't spend a lot of time working for school at home. They respected teachers, sometimes they were even scared of them a bit, but they were especially scared of priests. In case of bad or inappropriate and disrespectful behaviour they were punished, physically and in written form. Next to general educational subjects there were also practical lessons, like handicrafts and agriculture. Aims of these lessons were closely related to after-school activities pupils had to perform at home. The clothing they wore to school was simple, pupils usually had only a pair of clothes; one set for school and church and the other to wear at home. We found out, that our interviewees liked attending school and lessons, despite all the problems.

KEMIJA ALI KEMIJSKA TEHNOLOGIJA

Kozmetika z dotikom narave



Raziskovalke: Maja Urbančič, Tadeja Hrnčič, Lara Kolar

Mentorici: Jasna Cafuta, Anita Malovič

Šola: Osnovna šola Podlehnik

Recenzent: dr. Dušan Klinar

Povzetek:

Glavna tema raziskovalne naloge je bila naravna kozmetika za mladostnike. Za izdelavo te raziskovalne naloge smo se odločili, saj je v trgovinah mogoče opaziti veliko različnih izdelkov, ki imajo oznako naravno.

Da smo lahko odgovorili na naša vprašanja, smo izvedli primerjavo sestavin različnih naravnih kozmetičnih izdelkov.

V svoji nalogi smo raziskali, katere naravne sestavine se najpogosteje uporabljajo v naravni kozmetiki. V ta namen smo obiskali podjetje Vitiva d.d. Izdelali smo naravni kozmetični izdelek, brez umetnih barvil, umetnih dišav ali škodljivih primesi. Izdelek smo dali v analizo, s pomočjo katere smo ugotovili, da je naš izdelek zadostil standardom za izdelavo naravne kozmetike.

Tako smo ugotovili, da to, kar kupimo v trgovini, ni vedno naravno, zato si lahko z nekaj sestavinami sami doma pripravimo zaupanja vredno naravno kozmetiko.

Summary:

The main topic of the research paper was natural cosmetics for teenagers. The decision on preparing this research paper was made because there has been a lot of different products with a label »Natural« seen in shops.

In order to answer our questions we compared ingredients of different natural cosmetics products.

For our paper, we did a research of what natural ingredients are frequently used. To find out, we visited a company called Vitiva d.d. We manufactured a natural cosmetics product without artificial colorants, artificial fragrances or other harmful additions. The product was analysed and the analysis confirmed that our product reached natural cosmetics standards.

What we established is, that what we buy in shops is not always natural, and for this reason, we can prepare, with a few ingredients, our own trustworthy natural cosmetics.

Inhibicija korozije cinka z azoli v okolju natrijevega klorida



Raziskovalca: Tomaž Horvat, Lara Roškar

Mentorja: dr. Boris Zmazek, Barbara Petovar

Šola: Gimnazija Ptuj

Recenzent: dr. Dušan Klinar

Povzetek:

V nalogi sva raziskala vpliv nekaterih organskih spojin (azolov) na inhibicijo korozije cinka. Raziskala in primerjala sva učinkovitost inhibicije korozije enajstih različnih azolov. Kot korozijsko sredstvo sva uporabila 5-odstotno raztopino natrijevega klorida. Enajst ploščic cinka sva potopila v raztopino natrijevega klorida z enim od azolov. Dvanajsto ploščico cinka pa sva potopila samo v raztopino natrijevega klorida, brez azola, za primerjalni test. Cink sva izpostavila koroziji šest tednov; v tem času sva mase cinka izmerila šestkrat. Rezultati testiranja kažejo, da je največja učinkovitost inhibicije za azol 1,3-benzoksazol-2(3H)-tion (MBO), podobno učinkovitost imata še 1,3-dihidrobenzimidazol-2-tion (MBI) in 5-metil-1H-benzotriazol (TTA). Primerjave korozijske hitrosti kažejo na neinhibiran cink 0,057 mm na leto, hitrost korozije cinka v prisotnosti inhibitorja MBO pa je bila 0,036 mm na leto.

Summary:

This study analyses the corrosion inhibitory efficiency of certain azoles for zinc in 5.0 % sodium chloride solution by employing immersion tests. For this purpose, eleven zinc plates were transferred to 5.0 % sodium chloride solution, together with one of the eleven azoles. The twelfth zinc plate was submerged in sodium chloride solution without the presence of an azole – as a comparison test. Zinc was exposed to corrosion for six weeks, during which time the masses of zinc were measured six times. The test results show us the best inhibition efficacy for azole 1,3-benzoxazol-2(3H)-tion (MBO), 1,3-dihydro benzimidazol-2-tiol (MBI) and 5-methyl-1H-benzotriazole (TTA). Corrosion rate for uninhibited zinc is determined 0.060 mm per year, while for inhibited zinc corrosion rate is 0.033 mm per year in the presence of MBO as inhibitor.

PSIHOLOGIJA ALI PEDAGOGIKA

Ali je razvitost hemisfer povezana z učnimi stili?



Raziskovalka: Tjaša Vrečko

Mentorica: Vesna Švab

Šola: Osnovna šola Šmartno na Pohorju

Recenzentka: Mojca Slana

Povzetek:

V svoji raziskovalni nalogi sem preučevala razvitost leve in desne poloble možganov, navezujoč se na različne učne tipe učencev od 7. do 9. razreda osnovne šole Šmartno na Pohorju. Najbolj sta me zanimala vpliv razvitosti hemisfer na vizualni, kinestetični in avditivni učni tip in načini pomnjenja, ki jih ti učni tipi najučinkoviteje uporabljajo. Pridobljeni rezultati jasno kažejo, da ima največ učencev bolj razvito levo hemisfero in da so učenci z bolj razvito desno hemisfero v manjšini. V zadnji triadi je največ učencev vizualnega učnega tipa, sledijo jim učenci avditivnega učnega tipa in učenci kinestetičnega učnega tipa. Ugotovljeno je bilo tudi, da razvitost hemisfer ne vpliva na pripadnost različnim učnim tipom. Pri anketnem vprašalniku, namenjenemu učiteljem, so rezultati pokazali, da so nekateri načini poučevanja neprimerni za predstavnike, ki imajo raznoliko razvite možgane.

Summary:

The main purpose of my research was to study the development of the right and the left-brain hemisphere in connection with different learning styles of students from 7th to 9th grade in elementary school Šmartno na Pohorju. The focus was to study the influence of differently developed brain hemispheres on visual, kinaesthetic and auditory learning styles as well as the memorisation techniques that are most effective for them. The results show that with the majority of students the left-brain hemisphere is more developed. The prevailing learning style is visual, followed by auditory and kinaesthetic learning styles. The research also shows that one better developed brain hemisphere does not influence the learning style. The results of the survey for teachers show that not all of their techniques are fully appropriate for students with differently developed brain.

Ustvarjalnost in nadarjenost osnovnošolskih učencev na tehničnem področju



Raziskovalke: Ajda Arnuga, Sara Krajnc, Klara Sužnik

Mentor: dr. Dragica Pešaković

Šola: Osnovna šola Destrnik – Trnovska vas

Recenzentka: Mojca Slana

Povzetek:

Nadarjeni učenci potrebujejo pri tehniki in tehnologiji takšne dejavnosti, ki jim bodo omogočale razvijanje tehnične ustvarjalnosti. Nadarjenost obravnavamo kot potencial, lastnost, ki jo ima učenec, ustvarjalnost pa kot dejavnost, skozi katero se ta nadarjenost izkazuje. Torej ustvarjalnost pomeni dejavnost, preko katere se lahko izrazi določena nadarjenost.

Da bi ugotovili raven ustvarjalnosti in nadarjenosti na tehničnem področju ter povezavo med njima, smo opravili raziskavo, v katero so bili vključeni učenci, ki imajo predmet tehniko in tehnologijo, torej učenci 6., 7. in 8. razreda, učenci 9. razreda ter učenci 4. in 5. razreda, ki obiskujejo neobvezni izbirni predmet tehnika. Učence smo testirali z modeliranim testom tehnične ustvarjalnosti, ki smo ga sestavili s pomočjo Torranceovega testa ustvarjalnega mišljenja in z modeliranim testom tehnične nadarjenosti.

Ugotovljeno je bilo, da obstaja pozitivna korelacija med tehnično nadarjenostjo in tehnično ustvarjalnostjo. Odvisna je od spola, zaključne ocene in starosti. Dekleta so izkazala večjo tehniško ustvarjalnost, fantje pa večjo tehniško nadarjenost. Višja je zaključna ocena in starost učencev, višja je tudi stopnja tehnične nadarjenosti in tehnične ustvarjalnosti.

Summary:

Technical subjects should include creative activities in order to foster the development of technical creativity in talented students. Talent should be regarded as a potential or a characteristic which a certain student possesses. Creativity can be described as an activity through which such talent is expressed.

To establish the level of creativity and talent in the technical area and the correlation between the two, we conducted a research. The pupils from the 4th – 9th class were included. These are pupils who take mandatory Engineering and Technology class (pupils from 6th, 7th, 8th and 9th grade) and pupils that take optional classes in Technology (4th and 5th grade). Students were tested by a modified test on technical talent and creativity which was developed using the Torrance test of creative thinking and the modelling test of technical creativity.

The results show that a positive correlation between technical talent and technical creativity exists. It depends on the gender, age and final grade of the student. Girls displayed a higher level of technical creativity in comparison to boys. However, the boys achieved higher scores in the technical talent test. The higher the final grade and the age of the students, the higher was the level of their technical talent and technical creativity.

Glasba - najboljšo zdravilo?



Raziskovalki: Anika Auer, Ema Vantur

Mentorica: Mateja Zupanec

Šola: Osnovna šola Gustava Šiliha Laporje

Recenzentka: Mojca Slana

Povzetek:

Za raziskovalno nalogo z naslovom Glasba – najboljšo zdravilo? sva se odločili, ker si sami ne znava predstavljati življenja brez poslušanja glasbe in naju je zanimalo, kako poslušanje glasbe doživljajo najini vrstniki. Sami zase lahko trdimo, da je glasba za naju v določenih situacijah kot zdravilo, in meniva, da ima glasba velik vpliv na naša življenja.

Namen raziskovalne naloge je bil ugotoviti, kdaj učenci poslušajo glasbo in zakaj. Kako glasba vpliva na njih? Katero glasbo poslušajo v določenih situacijah in ali jo sploh poslušajo, ko se npr. učijo, so veseli, žalostni ... Predvsem pa naju je zanimalo, ali anketiranci zase lahko rečejo, da ima glasba nanje blagodejen oziroma zdravilen učinek, in če ima, v katerih situacijah jim je pomagala.

Po branju literature in pogovoru z integrativnim psihoterapevtom g. Samcem sva si zastavili dve hipotezi: 1. starost in spol učencev ne vplivata na pogostost poslušanja glasbe in poslušanje raznolike glasbe; 2. starejši učenci (III. VIO) prepoznavajo pozitiven učinek glasbe na svoje počutje bolj kot mlajši učenci (II. VIO). Po analizi podatkov, ki sva jih dobili s pomočjo raziskave med učenci od 4. a do 9. a, sva prvo hipotezo delno potrdili, drugo pa ovrgli. Ugotovili sva namreč, da starost ne vpliva na pogostost poslušanja glasbe in poslušanje raznolike glasbe, medtem ko spol vpliva. Pri drugi hipotezi pa se je izkazalo, da ne drži, da bi starejši učenci bolj prepoznavali pozitiven vpliv glasbe na svoje počutje, po razredih namreč ni opaznih razlik v zaznavanju.

Ker sva med raziskovanjem literature in izvajanjem raziskave med učenci prišli do dveh zanimivih seznamov pesmi, ki jih učenci poslušajo v določenih situacijah, da si z glasbo dvignejo razpoloženje, sva se odločili ta dva seznama združiti in ustvariti virtualno glasbeno lekarno. Virtualno glasbeno lekarno najdete na spletni strani naše šole. Priporočava, da jo obiščete, če pri sebi zaznate kakšno neželena stanja. Z glasbo so namreč zdravili že v prazgodovini.

Summary:

A life without music is hard to imagine. We have chosen this topic because we were interested in the ways our peers experience music. We feel that music can work as a remedy in some situations, and we believe that music has a great impact on our lives.

The purpose of the research was to establish when and why pupils listen to music. How does music affect them? What kind of music do they listen to in different situations? Do they listen to music while they learn, or when they are happy or sad? Most of all we were interested in a fact whether the music has a beneficent effect and in which situations?

After studying of literature and an interview with integrative psychotherapist Mr Samec, we have presented two hypotheses: 1. age and gender don't affect frequency and diversity of listening to music; 2. older students recognize more positive effects of listening to music than younger ones.

After data analysis which was gathered by research among students from 4th till 7th form, we have partially supported the first hypothesis, the second hypothesis was not supported. While age didn't have a large impact on the frequency of listening to music, the gender had. There was no difference between recognizing beneficial effects among older and younger students.

During our research we have encountered two interested playlists of songs which students listen to in different situations or to feel better. We have decided to create a virtual musical pharmacy. We recommend visiting it when you encounter bad temperedness. Music has been used as a remedy since prehistoric times.

Razgibani možgani



Raziskovalca: Luka Pučnik, Primož Potisk

Mentorica: Saša Krajnc Bek

Šola: Osnovna šola Gustava Šiliha Laporje

Recenzentka: Zdravka Pernek

Povzetek:

Namen najine raziskovalne naloge je bil, da raziščeva, ali ima gibanje dejansko vpliv na zbranost učencev pri pouku ter na kakšen način učenci to zaznavajo. Med drugim naju je zanimalo tudi, kaj bolj vpliva na višjo zbranost pri pouku: organizirane vaje za izboljšanje delovanja možganov – Brain Gym ali samo krajša jutranja vadba. Izvedeti sva želela tudi, pri katerem šolskem predmetu oziroma uri pouka učencem 3., 4. in 5. razreda najbolj pade zbranost. Predvsem pa naju je zanimalo, ali se bo po 2 mesecih izvajanja vaj Brain Gym in prosti vadbi prepoznala kakšna razlika v zbranosti učencev pri pouku. Hkrati sva od učencev želela izvedeti ali so se že kdaj prej razgibavali pred poukom ter med njim in pred pisnim preizkusom znanja. Ob koncu raziskave pa naju je seveda zanimalo tudi to, ali so učenci sami pri sebi zaznali kakršno koli razliko v samem delovanju pri pouku.

Sprva sva se dela lotila z zbiranjem teoretičnih osnov iz literature, kasneje pa sva to nadgradila s praktično izvedbo vadbe. Praktičnega dela raziskave sva se lotila tako, da sva učence 3., 4. in 5. razreda OŠ Gustava Šiliha Laporje razdelila v tri skupine. Ena skupina je imela 5-minutno prosto jutranjo vadbo, druga skupina vodene vaje (Brain Gym), tretja skupina pa ni imela posebnih sprememb v gibanju. Pred začetkom vaj sva izvedla anketo, ki je služila kot posnetek stanja in sva jo pozneje primerjala z anketo, izvedeno ob koncu raziskave.

Iz analize ankete sva ugotovila, da približno polovica učencev pred 2-mesečno vadbo ni imela vadbe pred in med poukom ali pred preizkusom znanja. Po izvedeni 2-mesečni vadbi se je učencem v primerjavi s posnetkom stanja pred izvedbo vadbe pri začetnih urah stopnja zbranosti nekoliko znižala, pri zadnjih urah pa se je zvišala. Kar se tiče predmetnih področij, je učencem zbranost po 2-mesečni vadbi pri matematiki nekoliko padla, pri naravoslovju oziroma spoznavanju okolja ostala enaka, medtem ko se je pri vzgojnih predmetih nekoliko zvišala. Spremembe v zbranosti so občutili učenci v obeh skupinah, ki sta vadbo obiskovali. Obe vadbi sta imeli na učence pozitiven učinek v enaki meri, kar pa se tiče zbranosti pri pisanju preizkusov znanja, je bila vadba Brain Gym bolj učinkovita. Obe skupini učencev skoraj v celoti menita, da je vadba na njih imela pozitiven učinek.

V okviru raziskovanja sva dosegla cilj, ki sva si ga zadala. Analizirala sva zbranost mlajših učencev pri pouku, hkrati pa sva tudi pri sebi zaznala nekatere spremembe v zbranosti.

Meniva, da bi se nalogo dalo še nadgraditi s tem, da bi v raziskavo vključili tudi učence višjih razredov, vadbo podaljšali na daljše časovno obdobje ali se osredotočili na analiziranje sprememb pri specifični skupini učencev, ki imajo z zbranostjo večje težave.

Hkrati meniva, da bi gibanje v osnovi bilo potrebno več vključevati v pouk in le-tega narediti bolj aktivnega, učenci pa bi se v svojem prostem času morali več gibati in manj časa presedeti pred elektronskimi napravami.

Summary:

The purpose of this research was to find out whether physical activity really has an impact on students' concentration and how they perceive it. Among other things, we were also interested in reasons for increased concentration. Is this the result of Brain Gym activities, or just the consequence of a short morning activity? Another field of interest was the question of school subjects. Which subjects in third, fourth and fifth grade decrease pupils' attention the most? The main thing was to find out what will happen after two months of prosecution of Brain Gym activities and workout, get to know if students ever warm up before an exam and to see if pupils will notice any improvements in their concentration in class.

At first, we started collecting theoretical bases from literature, and later upgraded it with practical exercises. We started the practical part by dividing pupils of OŠ Gustava Šiliha Laporje into three groups. One group had a five-minute random morning exercise, the second group was exposed to Brain Gym activities and the third group had no specific changes. Before this, we carried out the survey, which was used as a snapshot of the situation, and we later compared it with the survey we carried out at the end of the research.

From the analysis of the survey, we found out that about half of the pupils did not have any physical activities prior to and during school hours, or prior to a written assignment, before the two-month training session. After the two-month of physical activity, the level of concentration slightly decreased in the morning, compared to the snapshot of the condition, but increased by the end of the school day. As far as the subject areas are concerned, the focus of students after the 2-month training had slightly dropped in mathematics, but remained the same in science subjects, while in educational subjects it slightly increased. Both groups felt some changes in the level of concentration. Therefore, both activities were equally effective, but as far as the concentration with writing assignments was concerned, the Brain Gym method was more successful. Both groups almost fully believe that workout has had a positive effect on them. We achieved the goal we set in terms of analyzing the concentration of younger pupils in the classroom, but at the same time, we also detected some changes in our concentration. We could upgrade the research by including pupils of higher grades, extending the workout time, or focusing on changes in a specific group of pupils with bigger problems in concentration. At the end, we believe that physical activity should be included more, in order to make pupils and whole learning process more active. Children spend too much time sitting in front of electronic devices.

Vpliv vzgoje na odraščajoče otroke nekoč in danes



Raziskovalki: Zoja Visočnik, Tinkara Kračun

Mentorica: Nina Ančič

Šola: Osnovna šola Pohorskega odreda Slovenska Bistrica

Recenzentka: Zdravka Pernek

Povzetek:

Za vsakega posameznika je družina zelo pomembna, prav tako odnosi v njej, vzgoja v povezavi z obojim vpliva na izoblikovanje posameznika za vse življenje. Namen naloge je bil ugotoviti, kako se je vzgoja spreminjala, kako vpliva na otroštvo ter pregledati, kako gledajo na vzgojo in odraščanje otroci in njihovi starši z naše šole.

Raziskovalnega dela sva se lotili s pregledom in primerjavo literature, opredelitvijo pojmov v literaturi različnih avtorjev in z anketo med učenci in njihovimi starši, kar je omogočilo primerjavo odgovorov na podobna vprašanja. Vprašanja so se nanašala na posamezne teme, ki smo jih zasledili v literaturi; tako smo spraševali po doživljanju otroštva, namenih in ciljih vzgoje, o postavljanju mej in sporih ter njihovem reševanju. Zanimalo nas je tudi, katere naloge opravljajo otroci in kakšna pričakovanja imajo eni in drugi glede uspeha v šoli in sicer. Ugotavljali smo tudi, kakšne so nagrade in kazni ter nenazadnje tudi, katere vrednote se zdijo tako staršem kot otrokom najpomembnejše.

Ugotovili smo, da se otroštvo v različnih generacijah spreminja, a ostaja lep(ši) del življenja posameznika.

Summary:

For each individual, the family is very important, as is the relationship between the family members; nurture in relation to both affects the formation of an individual for life. The purpose of the research work was to determine how nurture was changing, how it affects the childhood and to examine how children and their parents from our school see nurture and growing up.

Firstly, we have reviewed and compared literature on the topic, we have defined the concepts of various authors and then we have carried out a survey between pupils and their parents, which has offered a comparison of the answers to similar questions of both. The questions were related to specific topics that can be found in the literature: the experience of childhood, the purposes and goals of nurture, the setting up of boundaries, the disputes and their solutions. We have also been interested in the tasks performed by children and what are the expectations regarding the school success. We have also tried to find out about the rewarding and punishments, and, last but not least, which values seem to be the most important to parents and the children.

We have found out that childhood in different generations changes, but it remains a beautiful part of each individual's life.

Mediacija - popotnica pri reševanju sporov



Raziskovalki: Sara Švarc, Urška Majcenovič Kovač

Mentorici: Urška Hlupič Voda, Marjanca Kušar

Šola: Osnovna šola Mladika

Recenzentka: Darja Plajnšek

Povzetek:

S to raziskovalno nalogo sva predstavili mediacijo kot novejši in primernejši način reševanja sporov. V teoretičnem delu sva opisali mediacijo, njene začetke v Sloveniji, načela in pravila, oblike mediacije ter vlogo mediatorja in medianta. Nato sva še podrobneje opisali vrstniško mediacijo, njen potek, uvajanje ter predstavili mediacijo na naši šoli.

V empiričnem delu sva si zastavili hipoteze in s pomočjo intervjuja in anket raziskovali razširjenost vrstniške mediacije na osnovnih in srednjih šolah na Ptuj. Zanimalo naju je, kakšno mnenje oz. odnos imajo učenci do mediacije in če prispeva k izboljšanju odnosov med sptima učencema. Posneli sva tudi videoposnetek o poteku mediacije na šoli in pripravili promocijsko gradivo.

Ugotovili sva, da imajo učenci pozitiven odnos do mediacije na šoli, da pomaga k izboljšanju odnosov med sptima učencema. Ugotovili sva tudi, da mediacijo izvajata od petih osnovnih šol samo dve in da medacije ne izvajajo v srednjih šolah na Ptuj. Iz intervjuja s koordinatorico na šoli lahko povzameva, da smo na dobri poti, da redno izobražujemo nove vrstniške mediatorje in je mediacija dobro sprejeta na šoli. Tudi midve jo želiva še predstavljati učencem v razredih. Z veseljem bova posredovali šolam najino promocijsko gradivo.

Najina želja je, da se vrstniški načini reševanja sporov z mediacijo še naprej razširjajo, saj so spori del našega vsakdanjega življenja.

Summary:

With this research project, we presented mediation as a newer and more appropriate way of resolving conflicts. In theoretical part, we described mediation, its beginnings in Slovenia, principles and rules of mediation, forms of mediation, and the role of a mediator and mediant. Then we described in more details the peer mediation, its course, its orientation, and presented it at our school.

In the empirical part, we hypothesized and with the help of interviews and surveys we studied the widespread of peer mediation in elementary and secondary schools in Ptuj. We were interested in what kind of opinion pupils have about mediation and if it contributes to improving relationships between conflicting students. We also recorded a video about the course of mediation at school and have prepared promotional material.

We have found that students have a positive relationship to mediation at school and that it helps to improve relationships between conflicting sides. We also found out that only two of the five primary schools are mediating mediation and that they do not practice mediation in secondary schools in Ptuj. From the interview with the coordinator at the school, we can say that we are on the right track, that we regularly train new peer mediators and that mediation is well accepted at school. We also want to present it to students in classes. We will be happy to send our promotional material to schools.

Our wish is that peer modes of conflict resolution will continue to expand through mediation, since conflicts are part of our everyday life.

EKONOMIJA ALI TURIZEM

Velika Nedelja na turističnem zemlevidu Slovenije



Raziskovalke: Hana Lah, Asja Kumer, Nika Meško

Mentorica: Petra Kumer

Šola: Osnovna šola Velika Nedelja

Recenzentka: Anja Potočnik

Povzetek:

Turizem in poznavanje svojega rojstnega kraja je nekaj, kar nam bo zelo koristilo, saj, če ne poznaš svojega kraja, potem tudi drugih ni treba. Ker smo opazili, da se mladi zelo malo zanimajo za turizem na splošno, smo se vprašali: "Koliko pa naši sošolci oziroma vrstniki poznajo Ormož in njegovo okolje?"

V raziskovalni nalogi smo s pomočjo literature in drugih virov informacij sestavili anketni vprašalnik, organizirali smo fokusno skupino, naredili intervju z vodjo TIC-a Ormož. Vse to smo raziskovali z namenom, da bi ugotovili, ali se mladi v starosti od 15 do 19 let zanimajo za turistične znamenitosti Ormoža in da bi v njih spodbudili zanimanje za turizem domačega kraja.

Ugotovili smo, da se raziskana populacija v Ormožu zanima za športne dogodke, koncerte, zabave in kino večere. Kulturno zgodovinske znamenitosti obiskujejo s šolo, naravne s šolo in z družino, zelo malo pa sami. Pozitivno je, da je med mladimi od 15 do 19 let večina prepričanih, da v Ormožu obstajajo možnosti za razvoj turizma in z njim povezane dejavnosti. Možnosti za razvoj turizma vidijo v doživljajskem turizmu in izpostavljanju kulturne dediščine. Poleg tega je velik turistični potencial v kolesarjenju, pohodništvu.

Eden izmed naših ciljev je bil tudi, da vse znamenitosti Ormoža mladi tudi vidijo oziroma doživijo, zato smo se odločili, da bomo po Ormožu oblikovali kratko učno pot, ki bo dostopna vsem in jo bo možno prehoditi v kratkem času, tako da bodo otroci v šolski uri ali dveh spoznali bogastvo Ormoža. Našo učno pot bo TIC Ormož vključil v turistično ponudbo in tako spodbujal mlade k raziskovanju zgodovine svojega kraja, njegovih turističnih in naravnih znamenitosti in tudi k raziskovanju kulturne dediščine Ormoža, saj je Ormož prelepo mesto, ki bi ga morali ceniti bolj, kot ga cenimo zdaj.

Summary:

Tourism and knowing your birth town is something that will have beneficial influence on us because if you don't know your town you don't need to know any other. As we noticed that youngsters aren't as interested in tourism as much as they could be we asked ourselves "How much do our schoolmates or peers even know Ormož and its surroundings?"

With the help of literature and other sources of information we put together a survey, we organised a focus group and did an interview with the head manager of TIC Ormož. We researched it so that we could figure out if teenagers from the age of 15-19 are interested in the sights of Ormož and so we could encourage the interest for the tourism of their home town.

We found out that the teenagers in Ormož are interested in sports events, concerts, parties and movie nights. They visit cultural-historical sights with school, natural sights with school and families, but they don't visit them alone very often. The positive thing is that teenagers from 15 to 19 years old think that there is a possibility for tourism and activities that are connected to it to develop in Ormož. They see the chances for it to develop in descriptive tourism and to put more attention to cultural heritage. Next to that there is a big potential in biking and hiking.

One of our goals was also to be seen or experienced all of the sights by the teenagers so we decided that we will form a short educational path that will be reachable for everybody and will be walk able in a short time so that teenagers will be able to walk through it in or two school period and they will see the resources of Ormož. Our educational path will be included in the offer of TIC Ormož so it will encourage teenagers to research the history of their home town, it's tourist and natural sights and cultural heritage of Ormož, because it is a beautiful town that we should cherish more than we do.

Mladi in turizem v Ormožu



Raziskovalki: Urška Pleger, Melani Klajderič

Mentorica: Nataša Kolar

Šola: Osnovna šola Ormož

Recenzentka: Anja Potočnik

Povzetek:

Turizem in poznavanje svojega rojstnega kraja je nekaj, kar nam bo zelo koristilo, saj, če ne poznaš svojega kraja, potem tudi drugih ni treba. Ker smo opazili, da se mladi zelo malo zanimajo za turizem na splošno, smo se vprašali: "Koliko pa naši sošolci oziroma vrstniki poznajo Ormož in njegovo okolje?"

V raziskovalni nalogi smo s pomočjo literature in drugih virov informacij sestavili anketni vprašalnik, organizirali smo fokusno skupino, naredili intervju z vodjo TIC-a Ormož. Vse to smo raziskovali z namenom, da bi ugotovili, ali se mladi v starosti od 15 do 19 let zanimajo za turistične znamenitosti Ormoža in da bi v njih spodbudili zanimanje za turizem domačega kraja.

Ugotovili smo, da se raziskana populacija v Ormožu zanima za športne dogodke, koncerte, zabave in kino večere. Kulturno zgodovinske znamenitosti obiskujejo s šolo, naravne s šolo in z družino, zelo malo pa sami. Pozitivno je, da je med mladimi od 15 do 19 let večina prepričanih, da v Ormožu obstajajo možnosti za razvoj turizma in z njim povezane dejavnosti. Možnosti za razvoj turizma vidijo v doživljajskem turizmu in izpostavljanju kulturne dediščine. Poleg tega je velik turistični potencial v kolesarjenju, pohodništvu.

Eden izmed naših ciljev je bil tudi, da vse znamenitosti Ormoža mladi tudi vidijo oziroma doživijo, zato smo se odločili, da bomo po Ormožu oblikovali kratko učno pot, ki bo dostopna vsem in jo bo možno prehoditi v kratkem času, tako da bodo otroci v šolski uri ali dveh spoznali bogastvo Ormoža. Našo učno pot bo TIC Ormož vključil v turistično ponudbo in tako spodbujal mlade k raziskovanju zgodovine svojega kraja, njegovih turističnih in naravnih znamenitosti in tudi k raziskovanju kulturne dediščine Ormoža, saj je Ormož prelepo mesto, ki bi ga morali ceniti bolj, kot ga cenimo zdaj.

Summary:

Tourism and knowing your birth town is something that will have beneficial influence on us because if you don't know your town you don't need to know any other. As we noticed that youngsters aren't as interested in tourism as much as they could be we asked ourselves "How much do our schoolmates or peers even know Ormož and its surroundings?"

With the help of literature and other sources of information we put together a survey, we organised a focus group and did an interview with the head manager of TIC Ormož. We researched it so that we could figure out if teenagers from the age of 15-19 are interested in the sights of Ormož and so we could encourage the interest for the tourism of their home town.

We found out that the teenagers in Ormož are interested in sports events, concerts, parties and movie nights. They visit cultural-historical sights with school, natural sights with school and families, but they don't visit them alone very often. The positive thing is that teenagers from 15 to 19 years old think that there is a possibility for tourism and activities that are connected to it to develop in Ormož. They see the chances for it to develop in descriptive tourism and to put more attention to cultural heritage. Next to that there is a big potential in biking and hiking.

One of our goals was also to be seen or experienced all of the sights by the teenagers so we decided that we will form a short educational path that will be reachable for everybody and will be walk able in a short time so that teenagers will be able to walk through it in or two school period and they will see the resources of Ormož. Our educational path will be included in the offer of TIC Ormož so it will encourage teenagers to research the history of their home town, it's tourist and natural sights and cultural heritage of Ormož, because it is a beautiful town that we should cherish more than we do.

Kaj nas greje najceneje - kako se ogrevamo v KS Zgornja Ložnica



Raziskovalca: Jan Ačko, Vid Šteinfelner

Mentorja: Primož Rajh, Miran Lovrenčič

Šola: Osnovna šola Pohorskega odreda, podružnica Zgornja Ložnica

Recenzentka: Ksenija Golob

Povzetek:

Z raziskovalno nalogo želiva ugotoviti prevladujočo obliko ogrevanja v Krajevni skupnosti Zgornja Ložnica in zakaj se prebivalci odločajo za posamezno vrsto ogrevanja, s tem pa tudi ozaveščenost ljudi o vplivih zasebnih kurišč na okolje ter prebivalcem predstaviti možnosti prehoda na drug ogrevalni sistem.

Za temo raziskovalne naloge sva se odločila, ker zasebna kurišča v Sloveniji postajajo vse večji ekološki problem, ki mu je po najinem mnenju namenjeno premalo pozornosti.

V raziskovalno nalogo sva vključila tudi karto, ki prikazuje vrsto kurišč v Krajevni skupnosti Zgornja Ložnica. Za to sva se odločila, ker takšne karte nisva nikjer zasledila in ker je lahko zelo dober vir za nadaljnje raziskave, ki bi bile povezane s to problematiko.

Pri izdelavi raziskovalne naloge sva imela največ težav z obdelavo spletnih virov, saj so bili podatki zelo neurejeni in jih je bilo težko strniti v povezano besedilo.

Nalogo bova predstavila tudi na dveh šolah in na krajevni skupnosti, saj želiva, da sporočilo najine naloge doseže čim več ljudi.

Summary:

In the research we wanted to determine predominant form of heating in Krajevna skupnost Zgornja Ložnica and answer the question why inhabitants select this type of heating. We also wanted to inspect people's awareness of the impact of individual heating systems on the environment.

The subject of the research was chosen on information that individual heating systems in private houses in Slovenia are becoming an increasing ecological problem.

We also included a map showing the type of individual heating systems in private houses in Zgornja Ložnica, because such a map does not exist yet. It could be a very good resource for further research on the subject.

The biggest obstacle writing the assignment was processing online resources. All the information was disordered and difficult to form into the coherent text.

GEOGRAFIJA ALI GEOLOGIJA

Pohorski lonec kamnin



Raziskovalca: Žiga Gaal, Vasja Lorbek

Mentor: Igor Keber

Šola: 2. osnovna šola Slovenska Bistrica

Recenzentka: Julija Potisk

Povzetek:

Hribovje Pohorje se je v svoji geološki zgodovini drugače razvijalo kot ostali del Slovenije. Pred izdelavo raziskovalne naloge sva bila že večkrat v Bistriškem vintgarju in vedno sva našla kakšen kamen, ki se drugače sveti. Zato sva dobila idejo, da bi izdelala raziskovalno nalogo na temo kamnine na Pohorju. Rimski kamnolom, Ančnikovo gradišče in slap Šum so že po svoji naravi tako zanimivi, da so najino idejo samo še podkrepili. Po pregledu obstoječe literatura sva oblikovala naslov najine raziskovalne naloge: Pohorski lonec kamnin.

Namen najine naloge je raziskati, ali so kamnine na Pohorju res tako raznolike. Raziskala sva nastanek kamnin na tem področju, prav tako naju je zanimalo, ali imajo te kamnine kakšno vrednost. Rezultate sva dobila z raziskavo, zakaj so ljudje uporabljali kamnine nekoč in zakaj jih uporabljajo danes. Ugotavljala sva tudi, ali še obstaja poklic kamnoseka. Kot nadgradnjo vsega raziskanega pa sva se preizkusila še v poklicu učitelja in sva usvojeno znanje posredovala učencem naše šole.

Pri delu sva uporabila več metod dela, in sicer analizo pisnih virov, terensko delo, raziskovanje bližnje okolice, kabinetno delo določevanja imen kamninam. Z obiskom podjetja Kamnoseštvo Žunko na Pragerskem ter kamnoloma Cezlak sva ugotovila, za kaj se danes uporabljajo kamnine. Z izdelavo šolske učne kamninske poti in s pomočjo šolske zbirke kamnin sva lahko posredovala usvojeno znanje učencem 2. osnovne šole Slovenska Bistrica.

Z raziskovalno nalogo sva ugotovila, da je naša bližnja okolica res nekaj posebnega. Kljub temu da se z evropskimi projekti promovirajo posebnosti Pohorja, meniva, da sva z najino nalogo tudi prispevala k ozaveščanju ljudi, k zanimanju za kamnine in poznavanje lokalne zgodovine.

Degradirana območja v občini Kidričevo



Summary:

In its geological history, Pohorje hills have developed differently than the rest of Slovenia. We were several times in Bistrica gorge before we started with this research paper and we always found some stones that had different glow. Because of that we came upon the idea that we would do a research on the subject of rocks in Pohorje. Roman quarry, Ančnik fort and waterfall Šum are interesting by themselves and therefore they supported our idea. After we examined available literature we formed the title of our research paper: Pohorje pot of rocks.

The purpose of our research paper is to explore whether the rocks on Pohorje are really so diverse. We researched the origin of rocks on this area we were also interested whether this rocks have any value. We got the results with the research on how people used the rocks in the history and how are they used now. We wanted to establish if there is still a profession of stonemasonry. We upgraded the research with the experiment when we became teachers ourselves and passed the knowledge to the pupils of our school.

In our work, we used different methodology namely the analysis of written sources, fieldwork, research of the immediate surroundings, appointing the names of the rocks. With the visit to the stonemasonry Žunko in Pragersko and quarry Cezlak we found out how rocks are used today. With the construction of school rock educational path and with the help of school collection of rocks we could exhibit gained knowledge to the pupils of 2. osnovna šola Slovenska Bistrica.

With the research paper we found out that our immediate surrounding is really something special. Despite the promotions of Pohorje supported by European projects we think that our research contributed to awareness of people, interest in the rocks and knowledge of local history.

Raziskovalke: Kaja Muršec, Jana Aubelj, Neja Kupčič

Mentorici: Klavdija Murko, Aleksandra Vidovič

Šola: Osnovna šola Kidričevo

Recenzentka: Julija Potisk

Povzetek:

V raziskovalni nalogi smo ugotavljali število in značilnosti funkcionalno degradiranih območij v Občini Kidričevo. Osnova za popis FDO so bili kriteriji projekta Celovita metodologija za vzpostavitev registra degradiranih območij, po katerem je bilo v naši Občini leta 2017 6 degradiranih območij. Stanje teh FDO se do začetka leta 2019 v zvezi z opuščeno in vzdrževanostjo ni spremenilo, razen pri gramoznici Pleterje, razlogi za njihov nastanek in ohranitev pa so predvsem v zasebnem lastništvu. Dodatno nov FDO pa predstavlja vrtnarstvo Revital, ki je šlo leta 2017 v stečajni postopek. Po metodologiji, v kateri smo kot FDO opredelili tudi območja, ki so manjša od 0,3 ha, pa je bilo v Občini Kidričevo ugotovljenih 19 degradiranih območij, ki so v večini popolnoma opuščena in nevdrževana, lastništvo je ponavadi prav tako zasebno. Za FDO, ki so v lasti Občine Kidričevo v večini obstajajo načrti, kako se bodo reaktivirala.

V prihodnje bodo potrebne pobude in pomoč s strani občinskih in predvsem državnih institucij, ki bi zasebnike usmerile k sanaciji oz. reaktivaciji degradiranih območij.

Summary:

In the research project we determined the number and characteristics of functionally degraded areas in the Municipality of Kidričevo. The basis for the FDO inventory was the criteria of the project A comprehensive methodology for the establishment of a register of degraded areas, according to which in our municipality in 2017 6 degraded areas. The status of these FDIs did not change with regard to abandonment and maintenance until the beginning of 2019, with the exception of the Pleterje gravel pit, and the reasons for their creation and conservation are mainly private ownership. In addition, the new FDO represents Ecotal Horticulture, which went into bankruptcy in 2017. According to the methodology in which we defined FDO areas as well as areas of less than 0.3 ha, there were 19 degraded areas in the Municipality of Kidričevo, which are mostly abandoned and unsustainable, and ownership is usually also private. For the FDO owned by the Municipality of Kidričevo, there are mostly plans of the Municipality, how they will be reactivated.

In the future, initiatives from municipal and, above all, state institutions would be needed, which would direct private individuals in our area to the rehabilitation, reactivation of degraded areas.



Ko Cankar sreča Ingoliča

Raziskovalke: Nina Grobelnik, Hana Krajnc, Špela Predan

Mentorica: Mateja Pučko Erhatic

Šola: Osnovna šola Antona Ingoliča Spodnja Polskava

Recenzentka: Darja Plajnšek

Povzetek:

Ob 100-letnici Cankarjeve smrti smo na naši šoli imeli v sklopu projekta Kulturna dediščina gre v šole delavnice, ki so bile vezane na življenje in delo našega prvega poklicnega pisatelja, kar je v nas vzbudilo željo po raziskovanju pomena in vpliva Cankarja danes in v času šolanja naših staršev. Z delavnicami smo dokazali, da Cankarja lahko prebira in razume vsak, le dejavnosti je potrebno zelo skrbno prilagoditi razvojni stopnji otrok in jih na tak način pritegniti k prebiranju njegovih del.

Pregledali smo literaturo, ki opisuje Cankarjevo življenje in delo ter v teoretičnem delu zapisali kratek povzetek. Pregledali smo sedaj veljavni učni načrt za slovenščino in učni načrt iz leta 1984 ter iskali podatke o tem, kakšna so priporočila in usmeritve pri obravnavi Cankarja v osnovni šoli. Pregledali smo vsa potrjena berila in berila izpred tridesetih let ter v njih iskali njegova dela. Ugotovljamo, da so Cankarjeva dela nekoč obravnavali že od prvega razreda naprej, sedaj pa le v devetih razredih. Z anketnim vprašalnikom za učence in starše smo preverjali mnenje in poznavanje našega največjega pisatelja, ki se je izkazalo za zadovoljivo. Pridobili smo podatke o zalogi Cankarjevih del na policah šolske knjižnice, s kratkim zbirnikom pa tudi število njegovih del na knjižnih policah učencev naše šole ter najstarejšo ohranjeno izdajo. S pomočjo Statističnega urada smo prišli do podatkov o tem, kje vse se sledovi imena Ivan Cankar pojavljajo še danes.

Summary:

At our school, there were different workshops to mark the 100th anniversary of the death of Ivan Cankar. They were a part of the project the Cultural Heritage. Different workshops were connected to the life and work of Slovenian first professional writer. All that prompted us to explore the significance and influence of Ivan Cankar today and in time when our parents were at schools. With the workshops we have proved that everybody can read and understand Cankar's work, only the activities need to be carefully adjusted to the development stage of the children. In that way the children can get motivated to read his work.

We have reviewed the literature that describes Cankar's life and work. In the theoretical part, we wrote a short summary about that. We have investigated the current curriculum for Slovenian language and the curriculum from the year 1984. We were looking for the information about recommendations and orientation in presenting Cankar in Primary schools. We have looked into all the readers that are used now and the reader 30 years ago and have been looking for the work of Ivan Cankar. We have found out that Cankar's work was taught already from the first grade on. Nowadays it is taught only in the ninth grade. The survey questionnaire for pupils and parents examined the opinion and knowledge of our greatest writer, which proved to be satisfactory. We got the number of books written by Ivan Cankar in our school library and also the number of his books in the homes of our pupils. We found the oldest preserved edition as well. Statistični urad provided the information about where the name of Ivan Cankar appears today.

SLOVENSKI JEZIK ALI KNJIŽEVNOST

FILOZOFIJA ALI SOCIOLOGIJA

Uporaba ličil na OŠ Gustava Šiliha Laporje



Raziskovalki: Gaja Ganzitti, Ema Mesarič

Mentorica: Špela Štefanič

Šola: Osnovna šola Gustava Šiliha Laporje

Recenzentka: Damjana Lah

Povzetek:

Za raziskovalno nalogo sva se odločili, ker opažava, da precej deklet na naši šoli že uporablja ličila, ki zanimajo tudi naju. Občasno jih uporabiva v prostem času, npr. senčilo za oči, šminko, lip glos, maskaro za trepalnice, barvico za oči, tonirano kremo. Ličila kupiva skupaj z mamo, uporabili pa smo jih tudi že v šoli, na prireditvi, seveda našim letom primerno.

Namen najine raziskovalne naloge je bil ugotoviti, v kolikšni meri dekleta 8. in 9. razreda na naši, vaški osnovni šoli uporabljajo ličila. Spraševali sva se, ali je podobno na mestni osnovni šoli, ali pa se morda tam dekleta bolj ličijo. Zanimalo naju je, kakšni so razlogi za uporabo ličil pri dekletih, ali jih morda uporabljajo zato, da bi ugajala drugim, predvsem fantom, katera ličila uporabljajo največ in ali imajo najljubšo znamko ličil.

Zanimalo naju je tudi, kako je bilo z ličenjem v preteklosti, kakšna ličila so uporabljali in ali so bila naravna in zato manj škodljiva.

Zastavili sva si tri hipoteze: večina deklet 8. in 9. razredov uporablja ličila, dekleta uporabljajo ličila, ker želijo ugajati drugim, predvsem fantom, dekleta na mestni šoli pogosteje uporabljajo ličila kot na vaški šoli. S pomočjo anketnega vprašalnika, ki so ga izpolnila dekleta 8. in 9. razreda naše, vaške šole, ter dekleta 8. in 9. razreda bližnje, mestne osnovne šole sva prvo hipotezo potrdili, drugo in tretjo pa ovrgli.

Najbolj sva bili presenečeni nad zavrnitvijo druge hipoteze, saj sva menili, da dekleta ličila uporabljajo predvsem zato, da bi ugajala fantom.

Summary:

We decided to do research because we notice that quite a lot of girls at our school already use makeup that is also interesting to us. Occasionally we use them in our spare time, e.g. eye shadow, lipstick, lip gloss, mascara for eyelashes, eye color, toned cream. We buy makeup together with mom, and we used them also at school, at the event, and makeup has been appropriate for our age. The aim of our research work was to determine how many girls of the 8th and 9th grade at our village primary school use makeup. We wondered if it was similar to the city elementary school, or maybe the girls in city use makeup more often. We were interested in what are the girls reasons for using the makeup, they maybe use them to please others, especially boys, which makeup use most and whether they have the favorite makeup brand. We were also interested in how it was with makeup use in the past, what kind of makeup they were using and whether it was natural and therefore less harmful. We put three hypotheses: most girls in the 8th and 9th grades use makeup, girls use makeup because they want to please others, especially boys, girls in town school use makeup more often than at a village school. With the help of a questionnaire filled by the girls of the 8th and 9th grade of our village school and the girls of the 8th and 9th grades of the nearby city primary school, we confirmed our first hypothesis, while the second and third ones were rejected. We were most surprised at the rejection of the second hypothesis, since we thought girls used makeup mainly to please the boys.

Odnos do invalidov v naši družbi



Raziskovalki: Anastasiya Stepanyan, Polina Stepanyan

Mentorica: Suzana Ramšak

Šola: 2. osnovna šola Slovenska Bistrica

Recenzentka: Damjana Lah

Povzetek:

V raziskovalni nalogi sva proučevali odnos do invalidov v naši družbi. Invalidna oseba je oseba, ki ima zaradi fizičnih, duševnih ali senzoričnih nepravilnosti omejene priložnosti za svoje osebno življenje v družbi. Skupine invalidov se med sabo zelo razlikujejo, vsaka skupina ima različne omejitve in potrebe. V raziskovalni nalogi, sva se osredotočili predvsem na odnos do invalidnih oseb in izkušnje z njimi. Vprašalnik so reševali učenci osmega in devetega razreda. Uporabljali sva tudi metodo opazovanja – opazovali sva, kako je urejen dostop za invalide do pomembnih ustanov v Slovenski Bistrici in v Ukrajini (Kijev). Postavili sva si štiri hipoteze, od tega sva tri potrdile, eno pa zavrnile. Ugotovile sva, da več kot polovica sodelujočih pozna vsaj eno invalidno osebo in da jih obravnava enako kot ostale ljudi. S pomočjo rezultatov sva ugotovili tudi, da večina učencev invalidni osebi še ni pomagala. Ko sva z opazovanjem proučevali dostopnost pomembnih ustanov za invalidne osebe, sva ugotovili, da je ta primeren in da so stavbe dobro urejene za dostopne.

Summary:

In our research paper, we have studied the attitude towards disabled people in our society. A disabled person is a person who has, because of physical, mental or sensory disabilities, limited opportunities for living in a society. The groups of disabled people differ greatly from one another; each group has different constraints and needs. We have used the method of surveying and observing. Students of the eighth and ninth grades – 51 in total, performed the questionnaire. We have also used the method of the observation – we have observed accesses for disabled persons to some of the important buildings in Slovenska Bistrica and in Ukraine. We have set four hypotheses, of which we confirmed three and rejected one. We have found out that more than a half of the students involved in the research know at least one disabled person and treat them the same way as other people. We have also found out that the majority of our peers has not helped the disabled person yet. With the observation of accesses to important buildings in Slovenska Bistrica, we have seen that the buildings are accessible.

Prijetna starost in čim daljša kakovostna leta: zadovoljevanje socialnih potreb starostnika nekoč in danes



Raziskovalki: Eva Dobnikar Klepec, Neli Nikolina Kos

Mentor: Dejan Ratej

Šola: 2. osnovna šola Slovenska Bistrica

Recenzentka: Andreja Čelan

Povzetek:

Sodobna družba se sooča s staranjem prebivalstva, zato so vprašanja povezana z upokojitvijo vedno bolj aktualna. Danes imamo na voljo veliko možnosti za preživljanje naše starosti. V raziskavi smo želeli preveriti, kako so starost preživljali v preteklosti. Želeli smo izvedeti v kakšnih okoliščinah so starostniki preživljali svojo starost v preteklosti in zakaj? To smo naredili s pomočjo pripovednega intervjuja, ki smo ga izvedli s 3 varovanci doma za upokojence. Upokojenci so nam skozi svoje življenjske zgodbe razkrili razmere v katerih so starost preživljali njihovi stari starši in starši. Ugotovili smo, da je bila edina možnost za dostojno preživljanje starosti v preteklosti družina, ki je bila dobro povezana.

Summary:

Today's society is facing population ageing; therefore, questions regarding retirement are arising. Nowadays, a wide range of options for life after retirement is available. The research paper focuses on circumstances of life after retirement in the past. A narrative interview was conducted with 3 residents of a retirement home. Circumstances of life of their parents and grandparents after retirement were revealed. According to the research, the only option for a decent standard of living after retirement in the past was provided by closely connected families.

Brezdomstvo v današnji družbi



Raziskovalki: Lucija Dimovski Ivanuš, Zarja Malovič

Mentor: Dušan Lubaj

Šola: Osnovna šola Olge Meglič Ptuj

Recenzentka: Andreja Čelan

Povzetek:

Raziskovalne naloge sva se lotili z namenom, da bi ugotovili, pod kakšnimi pogoji in v kakšnih okoliščinah živijo brezdomci, če dobivajo socialno pomoč, ali imajo na Ptuj center za pomoč brezdomcem, v katerega se lahko zatečejo, ter kako le-ta deluje.

Vse naštetost sva ugotavljali na podlagi dveh intervjujev, in sicer z vodjo centra za pomoč brezdomcem Kamra ter z enim od tam bivajočih brezdomcev, ki naj ostane anonimen. V pomoč nama je bila tudi anketa, ki sva jo izvedli v devetem razredu Osnovne šole Olge Meglič. V anketi je sodelovalo trideset učencev.

Na podlagi virov in literature (Knjižnica Ivana Potrča Ptuj, šolska knjižnica) ter s pogovorom strokovnjakinje na tem področju, ge. Amadeje Kokot, sva se seznanili z oblikami pomoči brezdomcem, o vzrokih za brezdomstvo in posledicah ter o brezdomstvu med ženskami.

Summary:

The purpose of this research paper was to find out more about the conditions in which homeless people live. Furthermore, it wanted to find out if homeless people receive financial social assistance and if there is a homeless shelter in Ptuj, where they can stay, and how that shelter operates.

To come to the conclusion the authors conducted two interviews - one with the manager of the Homeless Shelter 'Kamra' and another with one of the homeless people staying there, but who wanted to remain anonymous. They also conducted a survey among thirty nine-grade students of Primary School Olge Meglič using a questionnaire.

The paper presents how to help homeless people, reasons for homelessness, the consequences of homelessness and homelessness among women based on the different sources (acquired at Ivan Potrč Library Ptuj and Primary School Olge Meglič Library) and an interview with the expert on the topic researched (Ms Amadeja Kokot).

ZGODOVINA ALI UMETNOSTNA ZGODOVINA

Osamosvojitve Slovenije



Raziskovalka: Nika Čeh

Mentor: Aljaž Selinšek

Šola: Osnovna šola Ljudski vrt Ptuj, podružnica Grajena

Recenzentka: Bojana Murko

Povzetek:

Leta 1945 je bila Slovenija vključena v Jugoslavijo. Gospodarsko se je hitro razvijala, imela je zelo dobro delovno organizacijo. Kasneje so se v Jugoslaviji pojavili spori, v katerih je glavni udeleženec bila Slovenija. Vendar takrat še niso razmišljali o osamosvojitvi. Pobude za osamosvojitve so se začele po letu 1980 oziroma po smrti Josipa Broza Tita, saj so se takrat začele določene razmere zaostrovati. Sama odločitev Slovenije, da zapusti Jugoslavijo ni bila enostavna, saj je za to bilo potrebno veliko energije in sredstev. Prvo jasno zahtevo po osamosvojitvi je leta 1987 postavila skupina izobražencev v Novi Reviji. Zahteve po neodvisnosti so tudi izražale prve opozicijske stranke (Slovenska kmečka zveza, Slovenska demokratična zveza). Tudi slovenska oblast se je začela strinjati s predlogom in je začela braniti slovenske pozicije. Na protestnem zborovanju zaradi aretacij so prebrali in kasneje tudi podpisali majniško deklaracijo. Osnovne točke v deklaraciji so govorile o zahtevi po suvereni državi slovenskega naroda, o zahtevi po samostojnem odločanju, o spoštovanju človekovih pravic in svoboščin. Deklaracijo je podpisalo nekaj več kot sto tisoč ljudi. 6. decembra leta 1990 je skupščina sprejela zakon o plebiscitu. Ta je potekal 23. decembra 1990. Vprašanje na plebiscitnem listu se je glasilo : »Ali naj Republika Slovenija postane samostojna in neodvisna država?«

Summary:

Slovenia was part of Yugoslavia since 1945. It was economically well developed and it had very good working organization. In the future, there were some conflicts in Yugoslavia, in which, Slovenia took the main role. But back there, they didn't think of independence yet. Initiatives for independence had begun after 1980, when Josip Broz Tito died. The Slovenian decision to leave Yugoslavia, wasn't simple, because it would be necessary to have financial background and energy. The first clear demand for independence, was set up by a group of educators in Nova Revija in 1987. The demands of independence were also expressed by the first opposition parties (Slovene Peasant Union, Slovenian Democratic Union). The Slovenian authorities also agreed to accept the proposal and began to defend Slovenian positions. At the protest meeting because of the arrests, they read and later signed "The May Declaration" – Majniško deklaracijo. The basic points in the declaration discussed the demand for the sovereign state of the Slovenian nation, the demand for independent decision making and respect for human rights and freedom. The declaration was signed by a few hundred thousand people. On 6th of December 1990, the Assembly adopted a plebiscite law. This was held on December 23, 1990. The question on the plebiscite sheet read: "Should the Republic of Slovenia become an independent state?"

Grad Turnišče razliva svoje sledi



Raziskovalki: Nika Sitar, Tia Pleteršek
Mentorici: Marija Meklav, Silva Hajšek
Šola: Osnovna šola Hajdina
Recenzentka: Bojana Murko

Povzetek:

Najina raziskovalna naloga je letos osredotočena na zgodovinska dejstva sosednjega gradu v Turniščah. Grad predstavlja ohranjanje kulture kot živega procesa, ki ni samo kulturni projekt neke preteklosti, ampak nosi sporočilo tudi za prihodnost.

Dvorec Turnišče na področju Ptujkega polja se je omenjal kot grad s štirimi mogočnimi stolpi že v 13. stol. kot Tuernes. V baročni pozidavi po letu 1676 pa sta našla svoje mesto grofica Suzana E. Thurnin in njen sin Maksimiljan. Naloga je sestavljena iz teoretičnega in raziskovalnega dela. V prvem je poleg uvoda opisana celotna predstavitev teme. V drugem - raziskovalnem delu pa je predstavljena analiza ankete, iz katere je razvidno vedenje o značilnostih te kulturne dediščine.

Skozi njeno predstavitev bova posegali po najrazličnejših zgodbah in intervjuju, hkrati pa upoštevali strokovne poglede na zgodovinska dejstva.

Vsebinsko raziskovalne naloge bi želeli približati najinim sovrstnikom, saj gradovi vedno burijo domišljijo in so polni skrivnosti. Prav zaradi tega, ker so se mnogi podatki verjetno izgubili, je raziskovanje še toliko bolj zanimivo.

Summary:

Our paper focuses on the historical facts of the neighboring castle in Turnišče. The castle represents the preservation of culture as a living process, which is not only a cultural project of the past, but also a message for the future. The Turnišče mansion in the area of Ptujko polje was already mentioned as Tuernes - a castle with four mighty towers in the 13th century. Countess Suzana E. Thurnin and her son Maksimiljan found their place in the Baroque building after 1676.

The paper consists of theoretical and research work. In the first, besides the introduction, the entire presentation of the theme is described. In the second - the research part, an analysis of the survey is presented; it shows the knowledge about the characteristics of this cultural heritage. The presentation will cover a wide range of stories and interviews, while taking into account professional views on historical facts. We would like to bring the content of our research paper closer to our peers, as the castles always keep up the imagination and are full of secrets. Precisely because many of the data are likely to be lost, the paper is all the more interesting.

»Nič ni boljšega kot mir!« je rekel moj dedi



Raziskovalca: Luka Rupnik, Mai Primec
Mentorica: Mojca Žunko
Šola: 2. osnovna šola Slovenska Bistrica
Recenzentka: Jasmina Fišer Golob

Povzetek:

Za raziskovalno nalogo z naslovom »Nič ni boljšega kot mir!« je rekel moj dedi sva se odločila, ker naju zanima zgodovina druge svetovne vojne in obdobje po njej. Navdih sva dobila od dedka, g. Rupnika, ki je obravnavano obdobje izkusil na lastni koži in vnuku Luki še dandanes govori, kako pomemben je mir oziroma svoboda.

Namen najine raziskovalne naloge je bilo raziskati vsakdanje življenje ljudi v prvih petih letih po drugi svetovni vojni (1945–1950) v Slovenski Bistrici. Zanimale so naju možnosti zaposlovanja, prehrana, šolanje, prosti čas, načini prevoza, odnos do cerkve in markantnejše stavbe našega mesta.

Hipoteze, ki sva jih določila, so bile naslednje:

HIPOTEZA 1: Težko bo najti ustne vire.

HIPOTEZA 2: Ljudje so ohranili vero in so kljub nasprotovanju oblasti hodili v cerkev.

HIPOTEZA 3: V Slovenski Bistrici je bilo po vojni težko najti zaposlitev.

HIPOTEZA 4: Tudi po vojni je ostala hrana omejena.

V teoretičnem delu sva s pomočjo razpoložljive literature raziskala politično ureditev, gospodarstvo, šolstvo, kulturo in vsakdanje življenje v Slovenski Bistrici ter zaradi boljšega poznavanja širše zgodovine tudi povzela bistvene ugotovitve za Ljudsko republiko Slovenijo.

V raziskovalnem delu naloge sva izvedla šest intervjujev z živimi pričami in strokovnjaki, ki so povezani z obravnavanim obdobjem Slovenske Bistrice. Obiskala sva Zavod za kulturo Slovenska Bistrica in tovarno Impol.

Pri analizi rezultatov sva lahko potrdila drugo in četrto hipotezo. Ljudje so v Slovenski Bistrici v krščanski veri tudi po vojni našli uteho in so redno hodili v cerkve. Prehrana je bila tudi v našem mestu racionalizirana z živilskimi nakaznicami, čeprav intervjuvane priče pomanjkanja niso čutile. Prvo hipotezo sva le delno potrdila, saj sva našla še več prič, ki zaradi različnih razlogov z nama niso bile pripravljene deliti spominov. Tretjo hipotezo sva morala ovreči, saj je bila Slovenska Bistrica po vojni industrijsko, trgovsko in kulturno mesto. Zaposlitve ni bilo težko dobiti, delavce so iskali tudi v bližnjih krajih.

Rezultate najine raziskovalne naloge bi lahko še podkrepila z raziskovalnim delom v Pokrajinskem arhivu Maribor, od koder so nama posredovali seznam pisnih virov, povezanih s Slovensko Bistrico. Veliko je ohranjenih zapisnikov občinskih sej. Prav tako bi lahko našla kakšno živilsko nakaznico. Vse to bi bilo potrebno v arhivu podrobneje pregledati in raziskati.



Makole ali Turčija

Summary:

We have decided to name our research »Nothing is better than peace!« said my grandfather because we are interested in the history of the Second World War and the period after it. We got the inspiration from the grandfather, Mr. Rupnik, who has experienced this period, and even today, he speaks of the importance of peace or freedom to his grandson Luka.

The aim of our research was to explore the everyday life of people in the first five years after the Second World War (1945–1950) in Slovenska Bistrica. We were interested in the possibilities of employment, diet, education, leisure, means of transport, attitude towards the church and the most prominent buildings of our town.

We have set the following hypotheses:

HYPOTHESIS 1: It will be difficult to find oral sources.

HYPOTHESIS 2: People kept their religion and went to church despite the opposition of the authorities.

HYPOTHESIS 3: It was difficult to find an employment after war in Slovenska Bistrica.

HYPOTHESIS 4: There was limited food supply even after the war.

In the theoretical part of our research we have, with the help of available resources, explored the political regulations, economy, education, culture and everyday life in Slovenska Bistrica. In addition, we have summarized the main findings concerning Ljudska republika Slovenija (People's Republic Slovenia) for better knowledge of a wider history.

In the research part we have carried out six interviews with witnesses and experts connected to the presented period in Slovenska Bistrica. We have visited the cultural institute of Slovenska Bistrica and the Impol factory.

When analysing the results, we could confirm the second and the fourth hypothesis. People in Slovenska Bistrica have found consolation in their religion after the war and kept on going to the church. Food was rationalised with food stamps in our town too, although our witnesses did not feel deprived. We have partially confirmed the first hypothesis, since we have found several witnesses that were not willing to share their memories with us. We could not confirm the third hypothesis; Slovenska Bistrica was an industrial, commercial and cultural town after the war. Therefore, it was not difficult to get a job; workers were searched for even in nearby towns.

We could have enriched the results of our research with the research at Pokrajinski arhiv Maribor (The Regional Archives Maribor), from where we gained the list of written sources connected to Slovenska Bistrica. Many records of community meetings are preserved. We could also find some food stamps. All these things should be looked into and researched in the Archives.

Raziskovalec: Oskar Kaljun

Mentorica: Silvestra Samastur

Šola: Osnovna šola Anice Černejeve Makole

Recenzentka: Jasmina Fišer Golob

Povzetek:

Za raziskovalno nalogo z naslovom Makole ali Turčija sem se odločil, ker me zanima zgodovina, predvsem pa obdobje turških vpadov na naše ozemlje. Z raziskovalno nalogo sem želel odgovoriti na vprašanje, zakaj nas – Makolčane nekateri kličejo Turki. Nalogo sem napisal s pomočjo prebiranja literature o turških vpadih, največ odgovorov pa sem našel v župnijski kroniki. Med občani sem izvedel anketo in želel zbrati podatke o njihovem pogledu na obdobje turških vpadov ter povezavo z Makolami. Izhajal sem iz štirih hipotez. Tri sem potrdil (Turški vpadi so šli čez makolsko ozemlje. Makolčani verjamejo, da jih s Turki povezujejo zaradi turških vpadov. Makolčani so danes povezani s Turki.) in eno ovrigel. Hipotezo, da so Makole dobile ime po Maksimiljanu II., sem s pomočjo zapisa v župnijski kroniki ovrigel in tako zapisal pomemben podatek za zgodovino domačega kraja.

Menim, da so turški vpadi na našem ozemlju pustili neizbrisano sled. Prehodnost našega ozemlja je ljudi pogosto izpostavila napadom in bojevanju. Delček tega še danes Makolčani nosijo v svojem temperamentu.

Summary:

I decided for my research project entitled Makole or Turkey, because I am interested in history, especially the historical period of Turkish invasions on our territory. I wanted to answer the research question why some people refer to the inhabitants of Makole as Turks. I wrote my research paper by reading and referencing to literature on Turkish invasions and found most answers in our parish chronicle. I conducted a poll among the inhabitants of Makole, wanting to gather information on their views about the period of Turkish invasions and their connection with Makole. I had four hypotheses. I have confirmed three; that the Turks have passed the territory of Makole, that the people of Makole believe they are connected with the Turks because of the Turkish invasions, and that they are still connected with the Turks today. One of my hypotheses has been rebuked. It was the hypothesis that Makole was named after Maximilian II. This hypothesis has been rejected because of a record in the parish chronicle, which led to an important revelation about the history of my home town.

I believe that the Turkish invasions on our territory have left an ineradicable trace. The transitivity of our territory has at many times in history exposed the people, who live here, to attacks and fighting and a piece of this violent history is still part of the temperament of the people from Makole.

INTERDISCIPLINARNA PODROČJA

Kamor gre še cesar peš



Raziskovalki: Nia Krajnc, Eva Žunkovič

Mentorici: Jana Jerenec, Sonja Lenarčič

Šola: Osnovna šola Kidričevo

Recenzentka: Ines Bezjak

Povzetek:

Najina raziskovalna naloga raziskuje bralne navade oz. grde razvade straniščnih bralcev oz. piscev ob upoštevanju 7. pravila Daniela Pennaca, da lahko beremo kjerkoli.

Raziskovali sva javna stranišča, njihovo zgodovino, prav tako zgodovino hišnega stranišča in dogodke, povezane z njimi. Našli sva prav posebno obliko zapisov oz. poezije – straniščno poezijo, ki pomeni, da je nespodobna, prostaška. Zastavili sva si tudi raziskovalno vprašanje: Ali je straniščna poezija del kulturne dediščine? Ob prebiranju najrazličnejše literature sva izvedli metodo ankete in analizirali odgovore ciljne publike (mlajši, starejši občani). V raziskovalni nalogi sva prikazali tudi tabele in grafe, ki so izdelani na osnovi rezultatov analize ankete. V teoretičnem delu sva raziskovali zgodovino stranišča, straniščno literaturo in vsebino zapisov na stenah in lističih, najdenih na stranišču na Ptujju. Tudi danes se zapisi mnogih avtorjev znajdejo na toaletnem papirju, predvsem tistih, ki imajo hipergrafijo. Želeli sva izvedeti, kaj ljudje, predvsem mladostniki, pišejo na javnih mestih in kaj berejo oz. pišejo na domačih straniščih. Ugotovili sva, da ogromno ljudi bere in piše v toaletnih prostorih, ker imajo tam čas samo zase, predvsem za pisanje sms-sporočil.

Summary:

Our research work explores reading habits or bad habits of toilet readers and writers, taking into account the 7th Daniel Pennac's rule that we can read anywhere.

We investigated public toilets, their history, as well as the history of domestic toilets and the events associated with them. We found a very special form of records, called toilet poetry, which is indecent, vulgar. We also asked the research question: Is toilet poetry a part of cultural heritage?

When reading a wide variety of literature, we carried out a survey and analyzed the responses of the target audience (younger, older people). In the research paper, we also presented tables and graphs that were based on the results of the survey's analysis. In the theoretical part, we studied the history of the toilet, toilet literature and the content of records on the walls and sheets found in the toilets in Ptuj. Even today, many authors' writings find themselves on toilet paper, especially those with hypergraphy. We wanted to find out what people, especially adolescents, write and read in public places and domestic toilets. We found that a lot of people read and write in the toilet facilities, because they have time for themselves, especially for writing sms-messages.

Žvečiti ali ne, to je zdaj vprašanje



Raziskovalka: Eva Kozoderc

Mentorica: Ivanka Čeh

Šola: Osnovna šola Cirkovce

Recenzentka: Ines Bezjak

Povzetek:

Z žvečilnimi gumiji se srečujemo vsak dan; v šoli, doma in v prostem času. Zato sem se odločila, da to tematiko podrobneje raziščem.

Najbolj pomembno se mi je zdelo najti odgovor na vprašanje: žvečiti ali ne žvečiti. Pri nekaterih predmetih med testi učitelji dovolijo učencem žvečiti, saj so mnenja, da učenci lahko dosežejo boljši rezultat, drugi spet ne. Kateri imajo bolj prav? Kakšni pa so učinki na naše zdravje? Zakaj mladi sploh žvečimo?

Do odgovorov sem prišla na podlagi prebiranja ustrezne literature, izvedbe ankete, praktičnih preizkusov, testa zbranosti ter intervjujev. Ugotovila sem, da se mladostniki še premalo zavedajo, kako lahko žvečilni gumiji vplivajo na nas, in je ozaveščeni mladih na tem področju še premajhna. To kaže tudi analiza ankete, na podlagi katere sem ugotovila, da mladi bolj kot ne žvečimo iz navade. Praktični preizkusi pa so pokazali, da se je na šoli pod šolskimi klopmi skrivalo blizu 100 g odpadnih žvečilnih gumijev, kar se mi zdi relativno malo. Po analizi rešenega testa pozornosti sem ugotovila, da smo ob žvečenju bolj pozorni in osredotočeni na takratno dogajanje pred nami, saj dosežemo povprečno 20 % boljši rezultat kot brez žvečenja pri testu. O pozitivnih in negativnih vplivih na telo sem se prepričala tudi v intervjujih s specialistko družinske medicine ter zobozdravnico.

Menim, da so ljudje na področju o pozitivnih in negativnih vplivih žvečilnih gumijev premalo ozaveščeni in bi mogli bolj ozaveščati ljudi o učinkih žvečenja. Presenetilo pa me je, da so učenci bolj zbrani, če ob reševanju testa žvečijo.

Summary:

We use chewing gums every day: at school, at home, in our free time. That's the main reason for my decision of the topic.

The most important thing to find out was to discover the answer to the question: To chew or not to chew. During some school subjects teachers allow students to chew, because they believe that they can manage better success, but the others think differently. Which ones are right? What about the effects on our health? Why do young people actually chew?

I found the answers by reading different literature, carrying out a survey, practical tests, concentration test and interviews. I established that young people aren't aware enough, how can chewing gums effect on us and they simply don't know enough about that problem. The survey analysis showed that young people chew because of a habit. Practical test showed that near 100 g of scrap chewing gums was hiding under the desks in Primary School Cirkovce. I find that data surprisingly low. After the analysis of concentration test I found out that we are more concentrated and focused while chewing, because we achieve 20 % better results in comparison to not chewing during the test. I also interviewed a doctor and a dentist to know more about possible positive or negative effects on our body.

I think that people don't know enough about positive and negative effects of chewing. I was surprised by the fact that students are more concentrated if they chew during the test.

DRUGA PODROČJA

Homo sedens



Raziskovalki: Maša Baum, Nuša Ciglar

Mentorici: dr. Nataša Rizman Herga, Andreja Kolar

Šola: Osnovna šola Ormož

Recenzentka: mag. Mirjana Nenad

Povzetek:

Ljudje postajamo vse bolj sedeča populacija. Tudi mlajša populacija večino svojih aktivnosti (pouk, učenje, prosti čas, preživet s pomočjo IKT, TV ...) opravi v sedečem položaju. Pasivno sedenje negativno vpliva na zdravje učencev. Skrb za zdravje in varnost otrok spada med glavne naloge v šolah, zato sta ureditev prostora za delo in pravilna izbira šolskega pohištva pomembna dejavnika, ki vplivata na ohranjanje zdravja učencev.

Šolski prostori morajo biti urejeni po meri učencev tako z vidika zdravja kot z vidika njihovih potreb. Namen raziskave je ugotoviti, koliko časa dnevno opravljajo naši učenci (N = 202) različne aktivnosti v sedečem položaju, katere aktivnosti opravljajo sede, kakšno je njihovo mnenje o šolskih stolih in kakšne stole ter zakaj si želijo. Ugotoviti želimo tudi, kakšne stole bi učenci uporabljali v šoli.

V raziskavi so uporabljene različne metode dela: metoda analize virov, nevihta možganov in anketiranje. Kvalitativni del raziskave (z željo opremiti učilnico s stoli po željah in predlogih učencev) predstavlja izvedba didaktičnega eksperimenta. Ugotovili smo, da starejši učenci naše šole sedijo 13,5 ur na dan (od tega v šoli dobrih 6 ur), kar predstavlja četrtno dneva, zato je zelo pomembno, na kakšnih stolih in kako sedijo. Raziskava je pokazala, da učencem obstoječi šolski stoli niso všeč in si pri pouku želijo udobne, mehke vrtljive stole z naslonjali za roke in hrbet. Najbolj pomemben kriterij za izbiro stola je tisti, ki omogoča gibanje – dinamično sedenje.

Summary:

People are becoming an increasingly sedentary population. Even the younger population performs most of their activities (lessons at school, learning, leisure spent with ICT, TV ...) in a sitting position. Passive sitting has a negative impact on the health of pupils. Care for the health and safety of children is one of the main tasks in schools. Therefore, the arrangement of the place to work and the correct choice of school furniture are important factors that influence the preservation of pupils' health.

School premises should be arranged both in terms of pupils' health and in terms of their needs. The purpose of the research is to determine how much time our students (N = 202) spend each day on the various sedentary activities, what are these activities, what is their opinion about school chairs and what kind of chairs they want and why they want them. Therefore, we also want to find out what kind of chairs the pupils would use at school.

Various methods of work are used in the research: method of resource analysis, brain storming and a survey. The qualitative part of the research (with the desire to equip the classroom with the chairs according to the wishes and suggestions of the pupils) presents the implementation of a didactic experiment. We found out that older students of our school sit 13.5 hours a day, of which 6 hours in school, which represents a quarter of a day. It is therefore very important on what chairs and how they sit. The research showed that students do not like the existing school chairs and want comfortable, soft swivel chairs with armrests and backrests. The most important criterion for selecting a chair is the one that enables movement - dynamic sitting.

Gibalnica za vse



Raziskovalke: Nina Horvat, Edvina Durić, Daša Polanec

Mentorica: Urška Jaroš

Šola: Osnovna šola Destrnik – Trnovska vas

Recenzentka: mag. Mirjana Nenad

Povzetek:

Učenci imajo v naši šoli veliko priložnosti, da se športno udeležujejo. Poleg obveznega programa, kjer imajo učenci od prvega do petega razreda tri ure športne vzgoje na teden, se vključujejo v interesne dejavnosti gibanja v razširjenem programu, kjer jim je ponujeno še nekaj dodatnih ur. Pri pouku večkrat zaznavamo, da učenci potrebujejo krajši odmor, saj jim pade koncentracija, postanejo nemirni in potrebujejo sprostitev.

Namen naše raziskovalne naloge je bil, da povečamo gibalno aktivnost učencev med odmori in s tem izboljšamo njihovo koncentracijo med poukom. Izdelali smo video posnetke z različnimi oblikami vadbe, ki smo jih naložili na računalnike v učilnicah od prvega do petega razreda. Učitelji so s pomočjo IKT-table predvajali različne gibalne vsebine. Ugotovljali smo, ali povečana gibalna aktivnost vpliva na pozornost in koncentracijo pri pouku, ali učenci bolj sodelujejo in ali so bolj zavzeti za delo in umirjeni. Avtorji razlagajo, da je gibalna aktivnost pomemben dejavnik učne uspešnosti učencev. Učiteljicam smo naročili, naj dva tedna intenzivno predvajajo vsebine, ki smo jih pripravili. Nato smo jih s pomočjo strukturiranega intervjuja vprašali za mnenje. Podatke smo obdelali v excelu in jih predstavili z grafi.

Summary:

The students at our school have the big opportunity to partake in sports. In addition to the obligatory school programme where students from grades one to five have Physical education three times per week, they can choose a few lessons of additional extracurricular sportive activities within the extended programme as well. We have noticed that students need a shorter break during the obligatory lessons as their attentiveness declines, they become restless and thus need some relaxation.

The purpose of our research paper is to increase the physical activity of the students during the breaks and in this manner improve their attentiveness during lessons. We have produced video tapes with different types of workout exercise and uploaded them on computers in the classrooms from grade one to five. With the help of ICT teachers have projected various workout exercises to the students. We have researched whether an increased physical activity affects the attentiveness and concentration during the lessons, whether the students are more active and cooperative during lessons, whether they are more eager to work and whether they are calmer. The authors explain that physical activity is an important factor when it comes to students being successful in learning.

The teachers have been instructed to intensively project the prepared workout video tapes to the students for two weeks. Then we have interviewed the teachers using structured questionnaires which enabled the teachers to express their opinion on the matter. The data has been processed in excel and presented by using charts.

Glasba - tekmovalna disciplina na olimpijskih igrah



Raziskovalec: Matija Friedl

Mentorja: Marija Feguš Friedl, Boštjan Kozel

Šola: Osnovna šola Olge Meglič Ptuj

Recenzent: Štefan Petek

Povzetek:

Glasba in šport sta med seboj povezana. Pogosto vidimo tekače, ki med svojim treningom tečejo s slušalkami. Tudi pri vadbi aerobike in plesu predvajajo glasbo, ki je enako pomemben element pri izvajanju ritmične gimnastike, umetnostnega drsanja, dresurnega jahanja, sinhronega plavanja itd.

V ljudeh je že od nekdaj prisotna težnja po tekmovalstvu. Iz teh razlogov so organizirane prireditve, ki so namenjene tekmovalstvu na različnih področjih. Za najpomembnejšo športno prireditev zagotovo veljajo olimpijske igre. Znano je, da so v antični Grčiji med vadbo v palestrah in v gimnazijah izvajali glasbo. Verjeli so, da glasba pri zahtevnih atletskih disciplinah izboljšuje koordinacijo gibov. Manj znano pa je, da je bila glasba tekmovalna disciplina na olimpijskih igrah v antični dobi in na olimpijskih igrah moderne dobe. Zmagovalce v glasbi so častili enako kot zmagovalce športnih iger. V raziskovalni nalogi sem želel ugotoviti, kateri skladatelji klasične glasbe so tekmovali na olimpijadah. Zanimalo me je tudi, zakaj danes glasba ni več tekmovalna disciplina olimpijskih iger.

Z anketnim vprašalnikom sem želel pridobiti stališča in mnenja o tovrstnem tekmovalstvu pri slovenskih skladateljih ter pri učiteljih glasbene umetnosti v osnovnih šolah in pri študentih glasbene pedagogike. Ugotovitve raziskave so pokazale, da so tekmovalna v umetnostnih panogah na olimpijskih igrah, kot si jih je zamislil baron Pierre de Coubertin, skoraj povsem neznana.

Summary:

Music and sport are tightly connected. One can often see runners who listen to music while running. In aerobics and dancing, rhythmic gymnastics, figure skating, dressage riding, synchronised swimming etc. music is also equally important. Need to compete has always been present within human race. That is why there is a number of events dedicated to different types of competitions. World's most important sporting event is definitely the Olympic Games. It is a well-known fact that in Ancient Greece music was played during trainings in palaestrae and gymnasiums. They believed that music improved motor coordination in difficult athletic disciplines. However, there is a little-known fact that music used to be an Olympic discipline at the Ancient and Modern Olympic Games. Music winners used to be just as worshipped as winners of Olympic sports. With this research paper, the author tried to ascertain which classical music composers had competed at the Olympics and why music is no longer an Olympic discipline. The author also wanted to find out what Slovenian music composers, primary school music teachers and students of music think about such an Olympic discipline. The results have shown that competition in art disciplines at the Olympic Games, as visualised by Pierre, baron de Coubertin, is almost completely unknown to the respondents.

Naravni sladoled



Raziskovalki: Zana Kovačič, Katarina Šela

Mentorica: Natalija Koprivnik

Šola: Osnovna šola Gustava Šiliha Laporje

Recenzentka: mag. Mojca Metličar

Povzetek:

Sladoled je sladica, katere nastanek sega že v pradavnino. Ko so se narodi selili, so prečkali visoke gore s snegom. Ne vemo sicer, kdaj so sneg in led pomešali s sadjem in takrat edinim sladilom, medom, dobili pa so zelo okusno in osvežilno sladico, v kateri uživamo še danes.

V današnjem času je v vsaki trgovini, zelo pogosto pa tudi na ulicah, bogata izbira te mrzle sladice. Izbiramo lahko med različnimi okusi, barvami, oblikami. Ampak ali resnično vemo, kaj vse je primešano v to sladico bogatega kremastega okusa? Verjetno je bil sladoled, ki so ga narodi naredili iz snega in sadja, še najbolj naraven.

Želeli sva narediti sladoled, ki bo vseboval samo sveže sadje s čim manj dodanega sladkorja in mlečnih maščob. Sladoled sva dali pokusiti učencem in odraslim osebam. Komu bo boljši? Ali bo okus in izgled odvisen od sestavin, ki jih bova uporabili?

Zastavili sva si tri hipoteze. Prvo in drugo hipotezo sva potrdili, tretjo pa ovrgli.

Če bi še enkrat izvedli zastavljene naloge, bi spremenili sestavine sladoleda. Poskusili bi izdelati kremni sladoled, tako da bi poleg sadja uporabili še jogurt z višjim odstotkom mlečnih maščob.

Summary:

Ice-cream is a desert originated in the ancient times. When nations moved they crossed high mountains covered with snow. We do not know when the snow and ice were mixed with fruit and the only sweetener at that time honey, but they gained a delicious and refreshing desert which we still enjoy nowadays.

Nowadays each store, very often also in the streets, there is a rich variety of this cold desert. We can choose between different flavours, colours, shapes. But do we really know what is mixed in this desert of rich creamy taste? Ice-cream that was made from snow and fruit by the nations, was probably the most natural.

We wished to make an ice-cream containing only fresh fruit with as little added sugar and milk fat as possible. Ice-cream was given to the students and adults to taste. Who likes it best? Will the taste and the look depend on the ingredients used?

We set three hypothesis. First and second were confirmed, the third was refuted.

If we decided to do the given assignments again, we would change the ice-cream's ingredients. We would try to make creamy ice-cream using yoghurt with higher milk fat percentage along with fruit.

Od kmetije do tržnice



Raziskovalki: Neli Merkaš, Iva Vrhovšek

Mentorica: Tanja Keber

Šola: 2. osnovna šola Slovenska Bistrica

Recenzentka: mag. Mojca Metličar

Povzetek:

V zadnjem času se ljudje vse bolj zavedamo, kako pomembno je, kakšno hrano imamo na krožniku. Zato ima vedno več ljudi doma vrtove, visoke grede, vrtničke, vrtove na balkonih, kjer pridelujejo lastno zelenjavo, ali jo kupujejo na tržnici, preko e-tržnice ali pa kar direktno na kmetijah.

Tudi sami imava doma svoj vrt, za katerega skrbiva, in ugotavljava, da je doma pridelana zelenjava drugačnega okusa kot tista, ki jo kupimo v trgovini. Zato sva dobili idejo, da bi podrobneje raziskali omenjeno področje. Po premisleku in pregledu obstoječe literature sva oblikovali naslov raziskovalne naloge Od kmetije do tržnice.

Namen najine raziskovalne naloge je prikazati, kako od kmeta dobimo zelenjavo, ki jo ponujajo na tržnicah v domačem okolju. Zato sva najprej raziskali položaj kmetijstva in samooskrbe z zelenjavo v Sloveniji. Nato sva se osredotočili na tržnice v mestu, ki postajajo pomemben vir lokalno pridelane hrane v mestu, hkrati pa tudi pomembno središče dogajanja v mestnem jedru. Prav tako naju je zanimalo, koliko truda, odrekanja je potrebnega, da se lahko kmetje preživljajo izključno od pridelave zelenjave, ki je njihov glavni in edini vir zaslužka. Zagotovo pa se pri svojem delu vsakodnevno srečujejo s težavami in številnimi omejitvami.

S pomočjo anketnega vprašalnika med obiskovalci Grajske tržnice Slovenska Bistrica sva ugotovili, da tržnica ni zgolj prostor za nakup pridelkov, temveč tudi prostor za druženje, klepet in kavo. Med kupci je največ tistih, ki se tedensko skozi vse leto vračajo k istim ponudnikom, kljub temu da ima večina vprašanih doma tudi svoj vrt.

Ogledali sva si tudi kmetijo Gašparič v Podgorcih, na kateri se že od leta 2000 ukvarjajo z integrirano pridelavo zelenjave in jo vsak teden prodajajo na bistriški tržnici. S pomočjo intervjuja sva prišli do zaključkov, ki kažejo na to, da preživljanje zgolj s pridelavo integrirane zelenjave res zahteva veliko odrekanja, trdega dela in tveganja, saj so v veliki meri kljub pridelavi zelenjave v plastenjaki še vedno zelo odvisni od vremena in vremenskih nepravilnosti, kot so nalivi, toča, suša ... Kljub vsemu pa imajo kmetje svoje delo radi in ga opravljajo z velikim veseljem. Prav tako sva ugotovili, da se je v zadnjem času na tržnici povečala tako ponudba kot tudi povpraševanje. To sta nama potrdila tudi Gašparičeva, ki pravita, da se je prodaja njihove zelenjave na stojnici v Slovenski Bistrici v primerjavi s prejšnjimi leti povečala za več kot polovico.

Z raziskovalno nalogo si želiva, da bi spodbudili čim več ljudi k nakupu lokalno pridelane hrane, ki jo ponujajo na mestnih tržnicah ali pri kmetih, namesto hrane, ki je prepotovala veliko kilometrov, preden se je znašla na našem krožniku. Hkrati pa bi s tem prispevali h kakovostnejšemu prehranjevanju, k lokalnemu razvoju kmetijstva in ohranjanju narave.

Summary:

People are becoming more and more aware of the importance of what kind of food they put on the plate. Therefore, at home more and more people have gardens, raised garden beds, garden plots, and balcony gardens, where they produce their own vegetables or they buy it at markets, on e-markets or directly at farms.

We also have our own gardens at home, which we take care of, and we have learnt that home-grown vegetables taste differently than the ones we buy in a shop. Thus, we had an idea to research this area in more detail. After careful consideration and looking into the existent literature, we formed the title of the research paper From the farm to the market.

The purpose of our research paper is to show how we get the vegetables being offered at markets in local environment from the farmer. First, therefore, we looked into the situation of agriculture and vegetable self-supply in Slovenia. Then, we focused on town markets which are becoming an important source of locally produced food in towns and at the same time an important venue of happening in town centres. We also wanted to know how much effort and giving up was needed for farmers to live exclusively from producing vegetables, which is their main and only source of income. Certainly, they daily encounter problems and numerous limitations in their work.

With the help of survey questionnaires done among the visitors of Grajska tržnica (castle market) we established that the market was not only a place to buy products but also a place to socialize, chat and have coffee. Among buyers prevail those who return to the same producers every week throughout the year despite the fact that most of the interviewees have their own gardens at home.

We also went to the farm Gašparič in Podgorci; they have been in the business of producing integrated vegetables since 2000 and they sell them at the market in Slovenska Bistrica every week. Through the interview, we concluded that making a living only by producing integrated vegetables really demanded a lot of giving up, hard work and risk, as they are, despite producing vegetables in plastic greenhouses, in great extent still dependent on the weather and weather problems, such as rain, hail, draught ... Despite all, farmers love their work and carry it out with great joy. We also determined that supply as well as demand at the market had increased recently. The owners of Gašparič farm also confirmed that fact; they say the sale of their vegetables at the stand in Slovenska Bistrica have increased for more than a half compared to previous years.

With the research paper, we wish to encourage as many people as possible to buy locally produced food being offered at town markets or from farmers instead of food that has travelled many kilometres before ending up on our plates. That would also encourage people to eat healthier food and therefore contribute to the development of local agriculture and keeping nature clean.

Analiza ŠVK in prehranske navade v 3. in 6. razredu na 2. OŠ Slovenska Bistrica



Raziskovalki: Noa Tušek, Vita Bratkovič

Mentorica: Ivana Fekonja

Šola: 2. osnovna šola Slovenska Bistrica

Recenzentka: mag. Mirjana Nenad

Povzetek:

Na podlagi rezultatov iz ŠVK 2017/2018, ki sva jih pregledali za učenke in učence 3. in 6. razreda, sva ugotovili njihovi dve najslabši meritvi v gibalnih sposobnostih pri športno-vzgojnem kartonu. Glede na posamezne gibalne sposobnosti sva tako skrbno načrtovali in predpisali vaje, s katerimi bodo lahko te rezultate tudi izboljšali. Izbrane vaje so učenci in učenke, pod vodstvom njihovih učiteljev, izvajali pri pouku športa tri mesece od decembra do marca. Da sva lahko potem ugotovili, ali so vaje dejansko pripomogle k izboljšanju rezultatov, sva učenke in učence še enkrat testirali, pred pričetkom izvajanja določenih vaj pri pouku in ponovno spet čez tri mesece ter tako naredili analizo izmerjenih rezultatov.

Zanimalo naju je tudi, kakšne so prehranske navade otrok v 3. in 6. razredu, zato sva izdelali kratek anketni vprašalnik in ga razdelili učenkam in učencem ter nato podatke analizirali.

Summary:

We conducted a study of our students' sports-educational charts and their nutrition. The objective of our study was to empower kids to live a healthier life. We checked their sports-educational charts and conducted a nutrition survey. We compared the worst last years' results to this years' before and after the sports-educational charts. The results before the charts were poor so they had to perform exercises that could improve the results.

Proizvodnja in uporaba biooglja



Raziskovalca: Monika Fuks, Nik Štebih

Mentorici: mag. Gabrijela Plateis, Darja Hanželič

Šola: ŠC Ptuj, Biotehniška šola

Recenzentka: mag. Mojca Metličar

Povzetek:

V nalogi raziskujemo področje proizvodnje in uporabe biooglja. V zadnjem času postaja ponudba biooglja za različne namene vedno bolj aktualna. V uvodnem delu naloge sva s pomočjo objav v literaturi pregledala postopke proizvodnje biooglja in ponudbo tega proizvoda na tržišču v Sloveniji.

Ugotavljamo, da v Sloveniji lahko najdemo kar nekaj ponudnikov substratov z dodanim bioogljem ali proizvodov čistega biooglja za različne namene.

Oba prihajava s kmetij v okolici Ptuja in bi na domačih kmetijah želela obdelovati kmetijska zemljišča na naravi prijazen ekološki način. »Biooglj« je ekološki dodatek tlom, ki trajno regenerira strukturo zemlje ter omogoča trajno povečanje njene rodovitnosti.

V nalogi sva ocenila proizvodnjo odpadne rastlinske (in živalske) biomase na domačih kmetijah Fuks in Štebih, saj razmišljamo o možnosti tovrstne predelave odpadkov z domačih kmetij in posledično trženje takšnega proizvoda. Del opravljene raziskave predstavlja anketiranje vzorca populacije ljudi o poznavanju biooglja. Iz analiz 114 odgovorov na anketna vprašanja ugotavljamo, da razmeroma malo ljudi (le 26 %) biooglje prepozna kot koristen dodatek za rast rastlin, le 8 % anketiranih pa je biooglje že uporabljalo.

V nadaljevanju naloge sva izvedla rastni poskus (mikroposkus) s katerim sva ugotavljala vpliv dodanega biooglja na rast solate. Ugotovila sva, da sadike v tleh z dodanim bioogljem rastejo bolje. Solata na gredi, tretirani z bioogljem, je pokazala nekoliko višji pridelek; posamezne rastline so imele povprečno za 3,6 cm večje rozete kot solate v kontrolni skupini in za povprečno okrog 10 g večji skupni in tržni pridelek. S tem potrjujeva zastavljeno raziskovalno vprašanje, da dodajanje biooglja v tla, izboljša rast rastlin.

Predvidevamo, da je pridelava biooglja tržno zanimiva in predstavlja eno izmed možnosti uporabe in predelave odvečne biomase na kmetijah v Sloveniji. Ob medsebojnem sodelovanju večjega števila kmetij bi lahko zbirali zadostne količine biomase za opravljanje tovrstne dopolnilne dejavnosti na kmetiji.

Summary:

In our paper we research the field of production and use of biochar. In recent times, the supply of biochar for various purposes has become increasingly topical. In the introductory part of the paper, we reviewed the procedures for the production of biochar and the supply of this product on the market in Slovenia through literature publication. We find that in Slovenia we can find quite a few providers of substrates with added biochar or pure biochar products for various purposes.

We both come from farms near Ptuj and want to farm agricultural land in a naturally friendly ecological way on domestic farms. "Biochar" is an ecological soil supplement which permanently regenerates the structure of the soil and allows permanent increase in its fertility. In the task, we assessed the production of plant and animal waste biomass on the domestic farms Fuks and Štebih, considering the possibility of such processing of waste from domestic farms and consequently the marketing of such a product.

A part of the research carried out was a survey of a sample of the population of people on their knowledge of biochar. From the analyses of 114 responses on our survey questions, we find that relatively few people (only 26 %) recognize biochar as a useful plant growth supplement and only 8 % of respondents already used biofuel.

In the continuation of our paper, we carried out a growing experiment with which we determined the influence of biochar on salad growth. We have found that seedlings in soil with added biochar are growing better. We found that the salad on the shaft treated with biochar showed a slightly higher yield; individual plants had an average 3.6 cm larger rosette than salads in the control group and an average of 10 g higher total and market yield. This confirms the hypothesis that adding biochar to the soil improves the growth of plants.

It is assumed that the production of biochar is commercially interesting and represents one of the possibilities of using and processing excess biomass on farms in Slovenia. With the cooperation of several farms, it would be possible to collect sufficient quantities of biomass to carry out this kind of supplementary activity on the farm.



APLIKATIVNI INOVACIJSKI PREDLOGI IN PROJEKTI



Stop - pirotehnika



Raziskovalki: Zala Roškar, Blažka Margušič
Mentorica: Nataša Vauda
Šola: Osnovna šola Madika
Recenzentka: Ksenija Golob

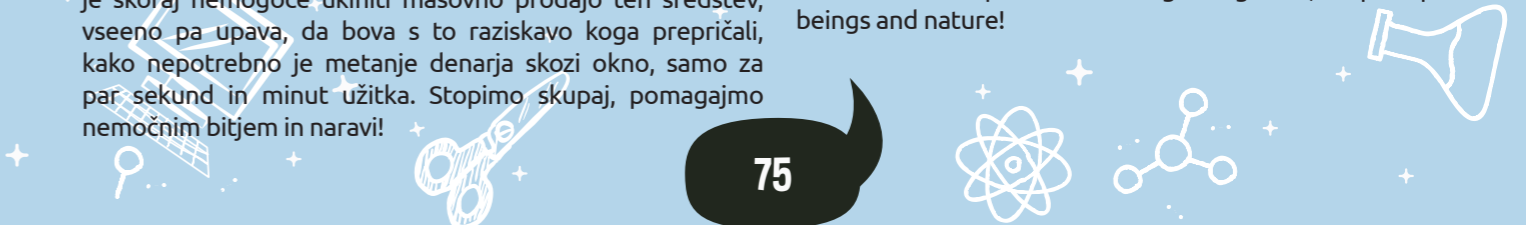
Povzetek:
Kot veliki ljubiteljci živali in narave, sva se odločili za raziskovalno temo Stop-pirotehnika. Obe sva lastnici živali, zato vsako leto opazujemo trpljenje živali, zaradi uporabe pirotehničnih sredstev. Ob tem sva se tudi vprašali, kako to, da kljub številnim opozorilom različnih medijev ljudje še vedno posegajo po uporabi pirotehnike. Z najino nalogo želiva na najin način opozoriti uporabnike pirotehničnih sredstev na trpljenje živali in njihovih lastnikov zaradi uporabe pirotehničnih sredstev.

Raziskali sva vpliv pirotehnike na čutila psov in mačk ter divjih živalih, in še le ob tem sva ugotovili kako to zelo škoduje našemu planetu in vsem bitjem. Ob raziskovanju sva se naučili, kako občutljiva in zelo razvita so živalska čutila in koliko glasneje slišijo poke od ljudi. Spoznali sva, da za hišne ljubljence obstaja veliko različnih prijemov, kako jih lahko zaščitimo. Zanimalo naju je delovanje in zgodovina pirotehničnih sredstev, ter škodljive posledice njene uporabe. V raziskovalni nalogi sva ugotovili, da se pirotehnika ni veliko spremenila skozi zgodovino in da nikoli ni bila v prid naši naravi, le nekaj kratkih sekund ljudem in njihovi domišljiji.

Pri raziskovanju nama je bil v pomoč intervju, ki sva ga opravili v veterinarskem centru Mlakar z veterinarjem Tilnom Mlakarjem in anketa, ki sva jo izvedli med osnovnošolci. Ugotovili sva, da osnovnošolci večino medijskih sporočil opazijo na družbenih omrežjih, ki jih uporabljajo. Naredili sva svoj Instagram profil, kjer opozarjamo ljudi na nevarnosti in posledice pirotehnike. S pomočjo profila opozarjamo uporabnike Instagrama na posledice uporabe pirotehničnih sredstev za živali in deliva zgodbe in mnenja ljudi, ki so sami imeli slabe izkušnje v zvezi z pirotehničnimi sredstvi. Pridružil se nama je kar nekaj ljudi, društev in lastnikov živali, s katerimi želimo preprečiti uporabo teh škodljivih izdelkov. Z raziskovalno nalogo sva pridobili veliko novih znanj iz področja veterine in naravoslovja. Najina glavna ugotovitev je, da zelo veliko ljudi, kljub medijski propagandi, ki osvešča o nevarnostih uporabe le te, uporablja pirotehniko. Sami zagovarjamo prepoved prodaje pirotehnike in sva virtualno sodelovali v raznih peticijah. Zavedava se, da je skoraj nemogoče ukiniti masovno prodajo teh sredstev, vseeno pa upava, da bova s to raziskavo koga prepričali, kako nepotrebno je metanje denarja skozi okno, samo za par sekund in minut užitka. Stopimo skupaj, pomagajmo nemočnim bitjem in naravi!

Summary:
As a great fan of animals and nature, we decided to explore the topic of Stop-pyrotechnics. Both of us are owners of animals, therefore every year we observe the suffering of animals due to the use of pyrotechnic products. In addition, we also asked how, despite numerous warnings from various media, people still encroached on the use of pyrotechnics. With our mission, we want to alert our users of pyrotechnic articles to the suffering of animals and their owners, because of the use of pyrotechnic articles. We investigated the impact of pyrotechnics on the senses of dogs and cats and wild animals, and yet only after this we found out how this greatly hurt our planet and all beings. During the research, we learned how sensitive and highly developed animal sensors are and how much more loudly they hear the hype from people. We realized that there are many different approaches for pets and how we can protect them. We were interested in the operation and history of pyrotechnics, and the harmful consequences of its use. In the research work, we discovered that the pyrotechnics did not change much in history and that it was never in favor of our nature, only a few short seconds to people and their imagination. During the research, an interview that we did in Veterinary Center Mlakar with veterinarian Tilen Mlakar and a survey we conducted among primary school students was helpful. We found that primary school students see most media messages on the social networks they use.

We made our own Instagram profile, where we alert people to the dangers and consequences of pyrotechnics. With the help of that profile, Instagram users are cautioned about the consequences of the use of pyrotechnic articles for animals and the delusional stories and opinions of people who have themselves had poor experience in pyrotechnics. We have been joined by quite a few people, societies and owners of animals with which we want to prevent the use of these harmful products. With the research project, we gained a lot of new knowledge in the field of veterinary science and natural sciences. Our main conclusion is that very many people, despite media propaganda, who are aware of the dangers of using it, use pyrotechnics. We defend ban on the sale of pyrotechnics and we virtually participated in various petitions. We are aware that it is almost impossible to abolish the massive sale of these funds, but we still hope that with this survey we will convince some people, how unnecessary is throwing money out of the window, only for a few seconds and minutes of pleasure. Let's get together, help helpless beings and nature!



ELEKTROTEHNIKA, ELEKTRONIKA IN ROBOTIKA

Mi plešemo



Raziskovalki: Nina Janžekovič, Nika Urek

Mentorja: Vida Lačen, Franc Vrbančič

Šola: Osnovna šola Olge Meglič Ptuj

Recenzent: dr. Martin Terbuc

Povzetek:

Živimo v svetu, kjer je tehnologija tesno vpeta v življenje ljudi. Do določene mere jo moramo razumeti in uporabiti v vsakdanjem življenju. Najbolje jo spoznamo, če se z njo ukvarjamo, jo raziskujemo ... Odločili sva se, da bova programiranje robota spoznavali preko plesa in glasbe ter si pridobili novo znanje na področju robotike.

Cilj najine raziskovalne naloge je bil raziskati področje vključenosti robotov v plesno točko. Raziskovali sva, če se je že kdo ukvarjal s to tematiko. V samem začetku najine naloge sva raziskovali robote, ki opravljajo enake gibe kot plesalci, so z njimi usklajeni ter plešejo v ritmu izbrane glasbe. V drugem delu naloge sva se lotili sestavljanja in programiranja robota s šestimi nogami. Poudarek sva dali stabilnosti robota, ki ne pade, tudi če mu hkrati izmakneva tri noge, vendar ne vseh treh na isti strani. Za robota sva sestavili tudi koreografijo, ki se začne izvajati s pritiskom na tipko. Koreografijo sva napisali z računalniškim programom Bascom.

Da bi lahko odgovorili na raziskovalni vprašnji, sva morali načrtovati, izvesti in testirati strojni ter programski del. Dokazati sva želeli, da lahko s svojim znanjem in izkušnjami sestaviva ter programirava robota, ki bo z nama nastopil kot soplesalec v plesni koreografiji.

Izvedba svetlobnih efektov z Arduino mikroprocesorskim sistemom



Summary:

We live in the world where people's lives are tightly intertwined with technology. That is why we need to understand and use it in our everyday lives. The best way to understand technology is to use and research it. The authors decided to learn about robot programming through dance and music, which helped them gain new knowledge in the field of robotics.

The aim of this research paper was to find out more about the inclusion of robots in dance performances. They tried to find out if there were already any existing research papers on this particular topic. The first part of the paper presents the research on the robots, which do not only imitate human dance moves but dance with humans in perfect harmony. The second part of the paper presents the process of creating and programming a six-legged robot. The main emphasis was put on the robot stability and making sure that it does not fall even if three of its legs are taken off (i.e. not all three of them from the same side of the robot's body). A choreography was created for the robot using a BASCOM computer software, which allows the robot to start dancing by pressing a button.

To answer the research questions, a mechanical and a programming part of the task needed to be prepared, carried out and tested. The authors wanted to prove that using their knowledge and experience they would be able to create a robot, which would be able to perform a dance choreography together with them.

Raziskovalca: Gašper Viher, Luka Janežič

Mentor: Franc Vrbančič

Šola: ŠC Ptuj Elektro in računalniška šola

Recenzent: dr. Martin Terbuc

Povzetek:

Dandanes so mikroprocesorji vsepovsod – od telefona do moderne pečice. Odločili smo se to področje podrobneje raziskati in sicer uporabo mikroprocesorja pri krmiljenju svetlobnih efektov. Najprej smo preučili, kaj je že znanega na tem področju. Pomagali smo si s pisnimi in drugimi viri. Ugotovitve smo uporabili za načrtovanje, izvedbo in testiranje naprave za krmiljenje svetlobnih efektov do nivoja, da bi bila primerna za prodajo. Pri dizajniranju naprave smo najprej določili njene funkcionalnosti, čemur je sledilo naročilo elementov ter študija elektronsko - programske zgradbe in delovanja le-te. Na koncu smo po vnaprej določenih postopkih in kriterijih napravo testirali ter podali mnenje o ustreznosti naprave.

Summary:

Nowadays microprocessors are everywhere, ranging from phones to modern stoves. That's why we decided to research this subject in more detail, namely using microprocessors to control light effects. We researched what has already been made on this subject. We got that answer from written and other sources. We used those answers to design, create and test such a device to a degree that it would be suitable to sell. At first we studied which functionalities said device would be capable of. What followed was a study of electrical and software parts of the device. In the end we tested it on the process and criteria, which we had determined and gave our thought on the adequacy of the device.

Moja soba v širnem svetu - kaj vse objavljamo na družabnih omrežjih



Raziskovalca: Charlie Križanc Stojnšek, Blažka Fišer

Mentor: dr. Andrej Šafhalter

Šola: Osnovna šola Anice Černejeve Makole

Recenzent: Daniel Tement

Povzetek:

Teoretični del raziskovalne naloge opisuje pravila varstva podatkov na spletu, pravila zasebnosti in uporabe Facebooka, navaja, katere podatke Facebook zbira in kako jih uporablja, podaja nekaj splošnih informacij o Facebooku in Instagramu ter o neprimernih in nezakonitih vsebinah.

V empiričnem delu so podani rezultati raziskave, ki sva jo naredili med učenci naše šole od šestega do devetega razreda. Ustvarili sva profil, ki s profili opazovanih oseb ni bil spletno povezan, ter ugotavljali, katere osebne podatke imajo učenci javno objavljene. Prav tako sva ugotavljali razlike glede na spol in starost. Osredotočili sva se na družabni omrežji Facebook in Instagram. Z raziskavo sva želeli ugotoviti, v kolikšni meri so učenci na spletu previdni.

Ugotovili sva, da so učenci naše šole relativno previdni na družabnih omrežjih, vendar obstajajo tudi izjeme. Previdnejši bi morali biti pri objavljanju osebnih podatkov, saj s tem razkrivamo svojo identiteto. Ugotovili sva tudi, da veliko učencev objavlja slike obraza ali celo neprimerne slike, kar je lahko zelo nevarno. Z varnostnega vidika neustrezno se nama zdi objavljanje naslova bivanja, kar prav tako počne nekaj učencev, ki so sodelovali v raziskavi.

Najin glavni namen je bil opozoriti sošolce in ostale učence na nevarnosti, ki jih lahko doletijo pri naivni uporabi družabnih omrežij z razkrivanjem preveč osebnih informacij in fotografij.

RAČUNALNIŠTVO ALI TELEKOMUNIKACIJE

Računalniška in internetna pismenost osnovnošolcev



Summary:

The rules on data protection on the web, privacy rules and the use of Facebook, the data that Facebook collects and uses, some general information about Facebook and Instagram, and inappropriate and illegal contents are described in the theoretical part of the research paper.

The results of the research that we made among the pupils of our school from the sixth to the ninth grade are presented in the empirical part. A profile that was not among the friends of the observed people was created by us, in order to find out, which personal information the pupils have made public. Also, the differences in gender and age were observed. The focus was put on social networks Facebook and Instagram. With the research we wanted to find out the extent of pupils' cautiousness on the web.

We have found out, that the pupils of our school are relatively cautious on social networks, with some exceptions. One should be more careful when posting personal information, as it reveals our identity. We have also found out, that many pupils publish facial images or even inappropriate images, what can be very dangerous. From the security point of view, posting one's own address as some pupils do, seems inappropriate to us.

The main purpose of the research paper is to warn and alert schoolmates and other pupils about the overwhelming dangers of the naive use of social networks by revealing too much personal information and photographs.

Raziskovalca: Jaka Ljubec, Luka Jeza

Mentorja: Robert Mlakar, Urška Hlupič Voda

Šola: Osnovna šola Mladika

Recenzent: Daniel Tement

Povzetek:

Računalniška pismenost je zelo pomembna. Potrebujemo jo pri učenju, pisanju, programiranju, pomembna je pri pridobitvi zaposlitve.

Odločila sva se, da bova raziskala, kakšna je raven računalniškega znanja in računalniške pismenosti pri učencih OŠ Mladika starih od 11 do 15 let. V teoretičnem delu sva opredelila dve različni ravni računalniške oziroma digitalne pismenosti in raziskala njen pomen. Predstavila sva statistične podatke o uporabi računalnika in interneta v Sloveniji in v Evropi.

Raziskavo sva opravila na 118 učencih OŠ Mladika z računalniško anketo. Opredelila sva stopnjo računalniške pismenosti in jo primerjala med skupinami, ki sva jih razdelila po spolu in starosti. Rezultati so pokazali, da 63,25 % učencev OŠ Mladika, starih od 11 do 15 let dosega kriterije za minimalno raven računalniške pismenosti. Optimalno digitalno pismenih je 40,15 % učencev. Računalniška pismenost narašča s starostjo učencev in je nekoliko boljša pri moških kot pri ženskah.

Okoli 10 % učencev ima slabo računalniško znanje, zato meniva, da bi bilo v prihodnosti potrebno bolj sistematično učenje uporabnih digitalnih vsebin. V času hitrega razvoja tehnologije se praktično od vsakega posameznika pričakuje, da ima vsaj minimalno raven računalniškega znanja.

Summary:

Computer literacy is of great significance. It is needed as well at learning, writing, programming and can play a very important role also at gaining a job.

We decided to research the average digital knowledge and the computer literacy of youngsters in Mladika Primary school aged from 11 to 15 years old. In the theoretical part, we described two different levels of computer literacy. We studied the meaning of the computer literacy and the area of its use, and the use of the Internet among the youth and other people in Slovenia and Europe.

We created an online survey and received 118 responses. We defined different levels of digital literacy and compared the results of different groups based on gender and age. The results showed that 63,25 % of students in our school have minimal computer literacy knowledge. While 40,15 % have optimal computer literacy.

Around 10 % of all participants have poor digital knowledge. Our opinion is that we should take digital knowledge more seriously and start learning about computer science more systematically. In our times of digitalization, computer science is developing faster than any time before and we should be aware of that. Everyone should try to catch up with the minimal level of digital literacy.

TEHNIKA ALI TEHNOLOGIJA

Tubofon



Raziskovalci: Matic Juršnik, Miha Golob, Erik Červek Roškarič

Mentorja: Rebeka Bračič, David Vodušek

Šola: Osnovna šola Antona Ingoliča Spodnja Polskava

Recenzentka: dr. Dragica Pešaković

Povzetek:

V raziskovalni nalogi predstavimo izdelavo aerofona, poimenovanega tubofon, skozi celotni proces ustvarjanja, od ideje do izdelka. Za raziskovalno nalogo smo se odločili na podlagi ogleda posnetkov uličnih igralcev, ki za svoje ustvarjanje uporabljajo izdelek, narejen iz improviziranih trdih vodovodnih cevi. Razmišljali smo, če bi lahko v šolski delavnici samostojno naredili glasbilo iz gibljivih gradbenih cevi iz umetne snovi. Ta bi moral biti dovolj kvaliteten za igranje, obenem pa stabilen za prenašanje. Dokazali smo, da je glasbilo mogoče samostojno izdelati. Domača izdelava tubofona je smiselna, saj se omenjenega izdelka ne da kupiti. Glasbilo tubofon je večjih dimenzij, saj morajo biti cevi pravilno nameščene brez pretiranega upogibanja, s čimer bi se spremenila višina tona. Dokazali smo, da predvideni fizikalni parametri, ki smo jih pred izdelavo glasbila predvidevali, veljajo. Ker smo uporabili cevi iz materiala, katerega lastnosti ni bilo mogoče predvidevati, je bila izbira materiala tvegana. Izdelano glasbilo je tako potrdilo, da dolžine cevi, debelina cevi in nadzorovano prepogibanje materiala dajejo glasbilu ustrezen zvok. Slike, ki jih nismo vključili v pisni izdelek so na povezavi: url.sio.si/tubofon123. Nadaljnje raziskovanje je smiselno z vidika izboljšav obstoječega glasbila. Uporabili bi lahko prozorni material. Zaradi možnosti vpogleda v notranjost glasbenega inštrumenta bi se atraktivnost glasbila povečala. Glasbilo bi lahko imelo tudi trak z LED diodami, s čimer bi se osvetlila notranjost ohišja in cevi. Vse te izboljšave bi podražile izdelavo prototipa.

Summary:

In the research the production of an aerophone called tubophone is presented. The whole process of creation, from the idea to the product can be seen. Watching the videos of street players using products made of improvised solid water pipes for their creation was a decisive factor when research subject was chosen. We were thinking of creating such a musical instrument in a school workshop by ourselves from flexible plastic pipes. The quality of the instrument should be good enough for playing but also stable enough for transport. We have proven that we are capable to produce the instrument. The production of homemade tubophone makes sense because it cannot be bought. The tubophone is quite large as the pipes in the frame must be properly positioned without excessive bending which can result in changing of the pitch. We have shown that the predicted physical parameters are valid. We have used the pipes from the material whose properties could not be predicted and the choice of the material was risky. By making the musical instrument, we have proved that the pipes' length, thickness and the controlled folding of the material give the proper sound to the instrument. More photos can be found: url.sio.si/tubofon123. Further research should be focused of improvements of the existing instrument. Transparent material might be used to make the musical instrument more attractive as it would be possible to take inside view of the instrument. The LEDs could be added to the instrument to illuminate the interior. All these improvements would increase the price of the prototype.

Izdelajmo sami: aparat za sladkorno peno



Raziskovalki: Anja Brglez Kobale, Gaia Jelen

Mentorica: Renata Kovačič

Šola: Osnovna šola Gustava Šiliha Laporje

Recenzentka: dr. Dragica Pešaković

Povzetek:

Za raziskovalno nalogo sva se odločili, ker imava zelo radi sladkorno peno, ki si jo velikokrat kupiva na raznih festivalih, prireditvah in vsako leto tudi na morju. Na podlagi tega sva začeli razmišljati, ali bi si lahko sladkorno peno naredili tudi sami doma, če bi imeli primeren aparat za izdelavo.

Namen najine raziskovalne naloge je bil ugotoviti, ali lahko izdelava aparat za izdelavo sladkorne pene tudi midve z osnovnošolskim znanjem in gradivi, stroji in orodji, ki jih imava doma ali pa jih imamo v šoli. Zanimalo naju je tudi, ali lahko z narejenim aparatom izdelava sladkorno peno. Ogledali sva si veliko video posnetkov, ki prikazujejo izdelavo aparata za izdelavo sladkorne pene. Po ogledu sva si izbrali dva posnetka, ki sta prikazovala izdelavo aparata brez segrevanja in aparata s segrevanjem, ter se odločili, da ju izdelava.

Zastavili sva si štiri hipoteze, ki sva jih preverjali s pomočjo metode preizkušanja, eksperimentiranja, opazovanja in anketiranja. Najprej sva uspešno izdelali oba aparata in tako potrdili prvo hipotezo, ki pravi: Meniva, da lahko doma izdelava aparat za sladkorno peno. Nato sva se lotili izdelave sladkorne pene s pomočjo izdelanih aparatov ter tudi brez aparata. Ugotovili sva, da je najlažje narediti sladkorno peno različnih barv z aparatom brez segrevanja. Pri izdelavi sladkorne pene z aparatom s segrevanjem pa sva imeli težave z določanjem prave temperature mase, ki jo potrebujemo za izdelavo pene. Nastalo je le nekaj nitk, nato pa se je masa prijela posodice in nitke niso več nastajale. Brez aparata za izdelavo sladkorne pene nama je po receptu ni uspelo narediti, nastale pa so okusne lizike in karamelni bonboni. Drugo hipotezo, ki pravi: Doma lahko naredimo barvno sladkorno peno, sva tako potrdili. Narejeno sladkorno peno sva nato primerjali s kupljeno po okusu in videzu ter ugotovili, da sta primerljivi po okusu, po videzu pa ne, saj je kupljena večja in bolj puhasta. Tako sva tretjo hipotezo, ki pravi: Meniva, da je doma izdelana sladkorna pena primerljiva s kupljeno po videzu in okusu, le delno potrdili. Na koncu sva se lotili še anketiranja učencev naše šole, saj naju je zanimalo, ali vedo, kdo in kdaj je prvi izumil aparat za izdelavo sladkorne pene. Četrto hipotezo, ki pravi: Manj kot 30 % učencev naše šole od 6. do 9. razreda ve, kdo in kdaj je izumil prvi aparat za izdelavo sladkorne pene, sva potrdili, saj nihče izmed učencev tega ni vedel.

Med pisanjem raziskovalne naloge sva dobili tudi idejo za nadaljnje raziskovanje. Ker sva največ težav imeli z izdelavo sladkorne pene z aparatom s segrevanjem, bi bilo zanimivo poiskati več video posnetkov, ki prikazujejo izdelavo take vrste aparata, ter izmed njih izbrati na primer tri in jih izdelati, nato pa raziskati, s katerim lahko najhitreje in najenostavneje izdelamo sladkorno peno, v kolikor bi si je zaželeli.

Summary:

We decided to do this research because we both like candy floss a lot and we buy it at various events, festivals and at the seaside, during summer vacations. This is why we came to idea whether we could make candy floss at home, if we had a suitable device for making.

The purpose of this research work was to determine whether we could make our own device for making the candy floss, with the knowledge, literature and tools we have at home, or at school and, of course, if this device would be suitable for making our own candy floss. We watched many videos showing the manufacture of a sugar foam maker. Among those, we selected two of them, showing the production of the device with and without heating and decided to make them.

We came up with four hypotheses which were checked by the methods of testing, experimentation, observation and surveying. As a result, we successfully produced both devices and we confirmed the first hypothesis that says: We believe that we can build a candy floss machine at home. Then we started making candy floss with and without the help of manufactured device. We found out that it is easier to make candy floss of different colours with the appliance, without heating. We had difficulties with determining the right temperature of the mass, needed for the production of the foam. At the beginning, when the ingredients were mixing, only a few threads were formed, and then the mass stopped sticking to the bowl. When we wanted to make the candy floss without the appliance, the only result were tasty lollypops and caramel candies. The second hypothesis that says: We can make colourful candy floss at home, was confirmed. We then compared both candy flosses, the one we bought and the one we made at home, and found out they are comparable in taste, but not in appearance, since the one from the store is bigger and more fluffy. With this, we partially confirmed the third hypothesis, which says: We believe that homemade candy floss is comparable with the bought one in appearance and taste. In addition, we began to interview students of our school, as we wanted to know if our schoolmates know who was the first one who invented the floss and when. Therefore, the last hypothesis that says: Less than 30% of our students from 6th to 9th grade know who and when was the first candy floss invented, was confirmed. None of them knew this information.

While writing this research paper, we also came up with the idea for further research. Since we had the biggest problem with heating, it would be interesting to find several videos that show the manufacture of such a device, and for example select three of them and try to make one similar device. With this, we could find out, which is the quickest and easiest way to make this tasty desert.

Vpliv glasbe na tehniško ustvarjalnost



Raziskovalki: Neža Rojs, Živa Mlakar

Mentor: dr. Andrej Šafhalter

Šola: Osnovna šola Anice Černejeve Makole

Recenzentka: dr. Dragica Pešaković

Povzetek:

V teoretičnem delu raziskovalne naloge so predstavljena dejstva o tehniški ustvarjalnosti, možganski hemisferičnosti, ustvarjalnosti in vrstah mišljenja (konvergentno, divergentno). Poseben poudarek je namenjen vplivu Mozartove glasbe na koncentracijo in razmišljanje.

V empiričnem delu so podani rezultati raziskave, ki sva jo izvedli med učenci od sedmega do devetega razreda naše šole. Sami sva izdelali dva testa tehniške ustvarjalnosti in uporabili test možganske hemisferičnosti, da bi ugotovili, kako glasba vpliva na ustvarjalnost. Pri testiranju sva učence razdelili v dve skupini, kontrolno in eksperimentalno. Učenci eksperimentalne skupine so Test tehniške ustvarjalnosti 2 reševali z glasbo.

Namen raziskovalne naloge je bil ugotoviti, ali poslušanje klasične glasbe vpliva na reševanje testov oz. nalog tehniške ustvarjalnosti (pisnih in praktičnih). Pri tem sva bili pozorni tudi na spol, možgansko hemisferičnost ter zaključno oceno pri tehniki in tehnologiji posameznega učenca.

Ugotovili sva, da glasba pozitivno vpliva na reševanje testov in s tem posledično tudi na tehniško ustvarjalnost.

Summary:

The facts about technical creativity, brain hemisphericity, creativity, and types of thinking (convergent, divergent) are described in the theoretical part of the research paper. Special emphasis is put on the influence of Mozart's music on concentration and reflection.

The results of the research we carried out among pupils from the seventh to the ninth grade of our school are presented in the empirical part. In order to determine how music influences creativity, two tests of technical creativity were made by us and a brain hemispheric test was applied. In testing, the pupils were divided into two groups, the control group and the experimental group. The pupils of the experimental group solved the Technical Creativity Test 2 while listening to the music.

The purpose of the research paper was to determine whether listening to classical music affects the test resolution or technical creativity tasks (written and practical). We also paid attention to gender, brain hemisphericity and the final technology assessment grade of each pupil.

We found out that music has a positive effect on test solving and consequently also on technical creativity.

OSNOVNE ŠOLE



UVRSTITVE NA DRŽAVNEM SREČANJU MLADIH RAZISKOVALCEV SLOVENIJE

Murska Sobota, 14. maj 2019



ŠOLA	NASLOV NALOGE	PRIZNANJE
OŠ Olge Meglič Ptuj	Glasba - tekmovalna disciplina na olimpijskih igrah	ZLATO PRIZNANJE
OŠ Cirkovce	Žvečiti ali ne, to je zdaj vprašanje	ZLATO PRIZNANJE
OŠ Antona Ingoliča Spodnja Polskava	Tubofon	ZLATO PRIZNANJE
OŠ Anice Černejeve Makole	Vpliv glasbe na tehniško ustvarjalnost	ZLATO PRIZNANJE
OŠ Mladika	Plastična embalaža v šolski kuhinji in trgovina brez embalaže	SREBRNO PRIZNANJE
OŠ Gustava Šiliha Laporje	Se reakcijski čas z odraščanjem otrok spreminja?	SREBRNO PRIZNANJE
OŠ Pohorskega odreda, podružnica Zgornja Ložnica	Kaj nas greje najceneje - kako se ogrevamo v KS Zgornja Ložnica	SREBRNO PRIZNANJE
2. OŠ Slovenska Bistrica	Pohorski lonec kamnin	SREBRNO PRIZNANJE
OŠ Kidričevo	Degradirana območja v občini Kidričevo	SREBRNO PRIZNANJE
OŠ Olge Meglič Ptuj	Brezdomstvo v današnji družbi	SREBRNO PRIZNANJE
OŠ Destrnik - Trnovska vas	Gibalnica za vse	SREBRNO PRIZNANJE
OŠ Velika Nedelja	Šolar v šoli Sv. Lenarta pri Veliki Nedelji v sredini 20. stoletja	SREBRNO PRIZNANJE
OŠ Gustava Šiliha Laporje	So mokerji (od)rešitelji sodobnega časa?	BRONASTO PRIZNANJE
OŠ Olge Meglič Ptuj	Mi plešemo	BRONASTO PRIZNANJE
OŠ Anice Černejeve Makole	Moja soba v širnem svetu - kaj vse objavljamo na družabnih omrežjih	BRONASTO PRIZNANJE
OŠ Mladika	Računalniška in internetna pismenost osnovnošolcev	BRONASTO PRIZNANJE
OŠ Podlehnik	Kozmetika z dotikom narave	BRONASTO PRIZNANJE
OŠ Mladika	Stop - pirotehnika	BRONASTO PRIZNANJE
OŠ Anice Černejeve Makole	Makole ali Turčija	BRONASTO PRIZNANJE
OŠ Antona Ingoliča Spodnja Polskava	Ko Cankar sreča Ingoliča	BRONASTO PRIZNANJE
OŠ Gustava Šiliha Laporje	Razgibani možgani	BRONASTO PRIZNANJE
OŠ Gustava Šiliha Laporje	Izdelajmo sami: aparat za sladkorno peno	BRONASTO PRIZNANJE

SREDNJE ŠOLE

ŠOLA	NASLOV NALOGE	PRIZNANJE
ŠC Ptuj, Biotehniška šola	Proizvodnja in uporaba biooglja	ZLATO PRIZNANJE
ŠC Ptuj, Elektro in računalniška šola	Izvedba akustičnega vmesnika z Arduino mikroprocesorskim sistemom	SREBRNO PRIZNANJE
Gimnazija Ptuj	Inhibicija korozije cinka z azoli v okolju natrijevega klorida	BRONASTO PRIZNANJE

ABECEDNI SEZNAM OSNOVNIH ŠOL

OSNOVNE ŠOLE

2. OŠ Slovenska Bistrica

OŠ Anice Černejeve Makole

OŠ Antona Ingoliča Spodnja Polskava

OŠ Cirkovce

OŠ Destrnik - Trnovska vas

OŠ Gustava Šiliha Laporje

OŠ Hajdina

OŠ Kidričevo

OŠ Ljudski vrt Ptuj, podružnica Grajena

OŠ Majšperk

OŠ Mladika Ptuj

OŠ Olge Meglič Ptuj

OŠ Ormož

OŠ Podlehnik

OŠ Pohorskega odreda Slovenska Bistrica

OŠ Pohorskega odreda Slov. Bistrica podružnica Zgornja Ložnica

OŠ Šmartno na Pohorju

OŠ Velika Nedelja

OŠ Videm

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Jana Aubelj
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Nuša Ciglar
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ddr. Ana Vovk Korže
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Marija Feguš Friedl
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dr. Nataša Rizman Herga

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Nina Ančić

Nina Žnidarič

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Primož Rajh

Rebeka Bračič

Renata Kovačič

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Silvestra Samastur

Sonja Lenarčič

Suzana Ramšak

Špela Štefanič

Tanja Keber

Urška Hlupič Voda

Urška Jaroš

Vesna Švab

Vida Lačen

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SREDNJE ŠOLE

Gimnazija ptuj

ŠC Ptuj, Biotehniška šola

ŠC Ptuj, Elektro in računalniška šola

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Lara Roškar

Luka Janežič

Monika Fuks

Nik Štebih

Tomaž Horvat

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Julija Potisk

Ksenija Golob

dr. Martin Trbuc

mag. Mirjana Nenad

Mitja Lah

mag. Mojca Metličar

Mojca Slana

dr. Štefan Čelan

Štefan Petek

Zdravka Pernek

IZVEDBO PROJEKTA SO OMOGOČILI:

Mestna občina Ptuj

Občina Destrnik

Občina Dornava

Občina Gorišnica

Občina Hajdina

Občina Juršinci

Občina Kidričevo

Občina Majšperk

Občina Makole

Občina Markovci

Občina Ormož

Občina Podlehnik

Občina Slovenska Bistrica

Občina Središče ob Dravi

Občina Trnovska vas

Občina Videm

Občina Zavrč

Občina Žetale

