INVENTORY CASE STUDY
Enrichment Programmes at Rodica Elementary School
Slovenia

The objective of the enrichment programmes is to complement regular school curriculum with additional contents, thereby increasing student motivation and fostering the students’ social skills, learning strategies, independence, and self confidence from grade 4 and onwards. Teachers use alternative forms of assessment, for example, pedagogical dialogues with the students about their individual progress, and students present their results and products at the school level (e.g., in films). Learning can take place outside the classroom, in the nature, camps, etc., where active learning and interactions with parents and community members are stimulated.

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ENRICHMENT PROGRAMMES AT RODICA ELEMENTARY SCHOOL, SLOVENIA

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I. Aims of the ILE and the Nature and History of the Innovation

Ethos

The Primary School (PS) Rodica has like other schools faced new challenges as for example different educational needs of pupils, learning motivation »crisis«, emerging new pathways to knowledge that can much better activate pupils (e.g., computer technology, other sources of knowledge at the local and wider area, local and international exchanges among pupils …), etc. The school responded to those challenges with alternative education environments where the contents are created and carried out in a more liberal way and are not included in the prescribed programme, or there is not enough time to realise them. Besides the contents, teachers and pupils jointly search for work methods which in pupils raise motivation for active participation throughout the entire school year. A special challenge were those pupils who demonstrated high potentials (intellectual, artistic, physical, speech and language potentials, as well as leadership and others), and who did not get involved in school activities and remained in the shadow as regards their talent, and who were de-motivated, not independent and passive. For those pupils the school established special enrichment programmes with adjusted activities (hereinafter enrichment programmes), as an alternative education environment responding to educational challenges of the 21st Century and which follows the implementation of key competences for the global society, the society of knowledge, and the development of individual potentials for a more active lifestyle in the community and for lifelong learning.

The school therefore started to carry out enrichment programmes created together with pupils and with the cooperation of parents.
The main aims of the enrichment programmes are as follows:
- to supplement regular school programme with additional contents,
- to transfer from teaching process to learning process,
- to increase the inner learning motivation of pupils, involved in the activities by taking into account their incentives/interests/proposals/ideas,
- to encourage the transfer to other educational areas,
- to create various possibilities for health promotion, for creative and research achievements, for the communication and understanding in their native and foreign languages and
- to provide a diversified offer of contents and activities.

The basic condition for reaching the objectives of the enrichment programmes are changes in teachers (who are direct initiators of the project) – in terms of the shift from traditional and transmission function of teachers to teachers – mentors, teachers advisors and facilitators of education processes. In this connection were also pupils direct initiators of the project and alongside with them also their parents who contributed to the recognition of key educational problems as well as the challenges brought by the modern development.

The programme objectives closely follow the goals of Primary Schools at national level.

The expected aim is to offer gifted and other pupils programmes which shall facilitate their development in different areas (developing higher forms of thinking, inclusion of authentic problems, research work, more ICT usage, developing creativity, freedom of speech, argumentation, searching for alternative possibilities, developing social and communication skills, developing leadership skills,...) and which are going to be adjusted to the needs of individual pupils.

**Context**

The Primary School Rodica is an independent primary school carrying out the national nine-year education programme. Its founder was the Municipality of Domžale.

The instruction takes place in 25 classes in two school premises. Pupils of classes up to the 5th grade are included in 12 initial groups of extended stay at school, and the morning care for the first grade pupils is organised in two groups.
After the instruction pupils can join various enrichment programmes occasionally organised also on Saturdays. Besides the enrichment programmes, the school supplements the prescribed programme with activities within different free interest areas and projects where pupils can be actively involved in the ecological area, in care for health, in researching cultural heritage, etc.

**Background**

The new School Reform (2000) among other curricular changes brought also a new concept of work with gifted pupils, which encouraged identifying gifted pupils and work with them. While implementing the concept of work with the gifted at school they noticed that they had a large proportion of identified gifted pupils (approximately 30% from a generation). A huge number of such pupils had been identified already in the 4th grade (9 years); according to the *Concept of detecting and work with gifted pupils* the first (and the most comprehensive) evidences of pupils being potentially gifted takes place already at the end of the first triad (8 years of age). The school discovered for those pupils in the first triad (aged 6-8) and at the beginning of the second triad (aged 9), besides above-average intellectual abilities and creativity, also a large extent of motivation, which in higher grades (aged 11 and more) it significantly decreased.

Teachers at the school noticed that those pupils hardly joined the existing additional programmes (for ex. joining the project Eco School as a Way of Lifestyle, Healthy School, UNESCO School, various development projects), and that they even rejected possible additional assignments and incentives from the part of their teachers within regular instruction and this way did not develop their capabilities in the light of identified potentials. Teachers’ evidences (meeting reports, subject expert meetings, minutes from teachers’ council meetings) and their reflections have indicated that in case of gifted pupils with their age their motivation gradually declines in connection with developing their potentials, above all in terms of getting involved in additional activities organised by their school. The school therefore decided (a group of 10 teachers not being in favour for additional qualification) to respond within the frame of the action research methodology to the fundamental research question: »What enrichment programmes should be offered to gifted pupils in order to gain their motivated involvement? «

In Spring 2008 a research was carried out among the gifted pupils containing also the question »Do you feel, that the school is offering enough additional activities for gifted pupils?«, and while giving their replies pupils had also an opportunity to comment, put down their proposals, desires and opinions in connection with gifted pupils and enrichment programmes. The research
included 53 gifted pupils who were at that time attending the school grades from 5 to 9 (aged 10 to 14).

The results have shown that the majority of pupils thought that the offer was big enough (79% of the questioned). Up to 19% of pupils stated that they would have wished a bit more activities (they mentioned sports activities, Slovenian language, media, chemistry and experimenting, mathematics and foreign languages as well as travelling); only one pupil thought that there were too many activities as he already felt himself overloaded.

In relation to the proposals and wishes for the future, pupils wrote down the following comments:

- more sports activities for gifted pupils
- more literary-poetic competitions
- astronomy to be added to the programmes of the gifted
- more activities in chemistry and household
- more emphasis on research work
- more connections of the school with other schools, mutual competitions in science, sport, ….
- more travelling, at least one free choice journey abroad
- the offered activities for gifted pupils mostly were competitions where I had participated even before we had special testing for gifted; I hope next year there will be a large choice of activities!
- certain programmes were not put in place
- I have a feeling that all is the same as if I were not gifted
- everything is OK
- the programme has not changed my system of work

The school started planning the improvements on the basis of their observations and situation analysis. At the beginning they wanted to offer gifted pupils a possibility of «enrichment programmes», which would encourage development in different areas – developing higher levels of thinking, inclusion of authentic problems, researching, developing creativity, freedom of expression, argumentation, looking for alternative possibilities, developing communication skills, developing leadership capabilities.

As the school was in line with the research question, very much interested in pupils’ motivation, they set as the basis of their research filed the question – “What motivates pupils?” They wanted to find out, why gifted pupils attend certain activities, what they miss in the activities, what gives them motivation for work?, etc.
For the needs of the action planning they composed a questionnaire and sent it to identified gifted pupils who joined the enrichment programmes. They asked pupils why they decided to attend certain activities, what they liked the most in those activities and what they would like to change, improve.

Based on the acquired results every teacher gave a consideration to the possibilities of improving his activity and envisaged certain changes. Active inclusion of teachers in the phase of planning was exceptionally useful, as it gave teachers a chance of direct reflection from the part of the users of enrichment programmes which provided them with the grounds for very specific and concrete improvements.

Planning of changes took place individually for each activity – every teacher worked out his own individual plan on the basis of collected information, situation analysis and the detected need and set his own objectives within the common research goal – to improve gifted pupils’ motivation for participation in the enrichment programmes.

The first research round was »put in place« by the end of the school year 2008/2009, and then they checked the situation and evaluated the work done so far; in the school year 2009/2010 they draw a new research cycle setting themselves even more concrete and individually oriented objectives.

In order to follow the process and the effects of the introduced innovation they implemented the methods and techniques, such as: observation, events description, fieldwork reports, diaries of thoughts and impressions, intermediate reflections, audio, video and photo materials, interviews, etc.

Notwithstanding that the methods of individual mentors – performers of enrichment programmes were during the development process of the innovation relatively individual, and that every teacher conceived his specific research question and above all his own objectives in the light of the changes, a big achievement for everyone involved in the project was the opportunity of cooperation. The project members contemplated together about their past work with the gifted, they discussed ideas, complemented them, changed them as well as eliminated former shortcomings. At the end of the school year they already began to conceive new, innovative ideas for the forthcoming year. Through a dialogue with other teachers, in smaller groups, by exchanging experiences, they opened up a very effective development process.

A new research question, based on the reflections and joint considerations of teachers, came up, with the support of and with the directions given by mentors, from the part of pupils: »How to become even better through having a great time?«

In terms of the new proposed idea each participants of the project worked out his individual plan. Also in the second year the project took the same course as in the first year. The project group managed to introduce real innovation in the area of work with gifted pupils. Teachers
enlarged their teaching success by doing the research into their practice, they developed originality, introduced their excellent pre-planned teaching practice, further developed it and by doing that found fresh novelties. Here the basics of pupils’ creativity were taken into account – teachers provided pupils with free learning environment. The result of that were the achievements at various activities: animated films, movies, literature creations, collections of poems, theatre presentations, research works, the implementation of ICT technology …

First of all, some enrichment programmes were dedicated to the preparations for different school competitions and for the work with the gifted. Such programmes were managed by the school counselling office. Soon after that the school found out that programmes for just a narrow group of pupils (gifted pupils) lead towards elitism having negative consequences for their social development. Hence, the school started to offer the enrichment programmes also for other pupils and pupils with behavioural and learning difficulties. By including those pupils into the enrichment programmes they above all increased their educational motivation and the development of social competences. That represented a significant innovative shift in the planning of and implementation of the enrichment programmes. Teachers also successfully implemented certain didactic solutions from the enrichment programmes in their provision of regular educational programme. The initiative came from some teachers who already had been carrying out certain parallel programmes (for example additional instruction, free interest activities). Some difficulties were caused by the fluctuating motivation and lack of pupils’ perseverance in the provided activities.

From that reason they established a school project group in order to do the planning, to carry out and to manage the enrichment programmes; and the school formalised the research practice by applying the innovation project at the National Education Institute (Zavodu RS za šolstvo). NEI appointed an expert consultant to monitor the work of the school project group and provided occasional professional support. A bit later some other teachers joined the project team working as experts from their proper professional experiences, and functioned at the level of the team and also wider as critical friends.
The uniqueness of the enrichment programmes emerging during the innovation project was the fact that they were created together with pupils. Teachers accepted different educational needs of pupils and together with pupils discovered new ways to knowledge at the local and also wider environment, through local and international exchanges among pupils. This approach required teachers’ motivation to study their own practice and to develop it in that direction.

Additional added value of the project activities was a parallel integration of certain contents and didactic modules into the regular curriculum. Pupils had an opportunity to choose and to help create an educational environment – the environment which represented an encouraging and at the same time safe educational environment. Safe, encouraging and innovative education environment is not a technical measure, but it means an intertwining of social factors that pupils emphasise by themselves at the level of various education and formation situations. Graduality is important: in development, in learning, in examples, experiences, in changes. Here the importance of relationship has to be underlined, the feeling of being accepted and the feeling of experiencing; the feeling that one can (=may and is able to) influence, can express himself, can think, can contribute, create, cooperate/co-create. Education environment must represent a challenge, must drive and force one into being active and at the same time bring pleasure and joy of being involved in educational opportunities.

The enrichment programmes are therefore conceived in the way that they represent adequate »free educational environment« which can be entered as well as stepped out, the environment which personalises learning and allows promotion according to capabilities and interests; environment which offers creative expression (for ex. animated films, movies, literary creativity in the mother tongue and foreign languages, fine arts creation). Pupils present their activities each year through the promotion of their achievements, as for example: competitions, a day of creativity, cultural performances, school newspaper, and internet presentations.

Several documentary sources have been produced so far on their work with the enrichment programmes; they represent separate programmes: promotion and publication of research works, photo reports, publication on the school web pages, school newsletter, collection of poems, films and animated films, TV and radio broadcasts, publications in the local papers, scientific discussions, publication of teachers’ articles in scientific magazines, presentations of teachers and pupils at organised education and trainings of teaching staff, presentations,
prepared by pupils for other pupils, for teachers’ council, exhibitions at the school premises and at the outside institutions (library).

The official school authorities support the ILE project above all through school counselling. While carrying out the programmes the only obstacle seems to be the rigidity of regular curriculum, as they have to, in most cases, perform the programmes outside regular instruction – in the afternoon or on Saturdays. The ILE project is not a part of a wider network of projects. The project does not have a sustainable financial source, but is supported through the financial contributions of local entrepreneurs and pupils’ parents and to some extent by the school by redistributing its regular financial sources.

II. Structured Patterns and Characteristics of the Learning Environment

Learning context

During the initial phase the teachers of the innovative project offered to gifted pupils the possibilities – programmes that would encourage development in different areas. So, they prepared enrichment programmes for the development of higher levels of thinking, inclusion of authentic problems, researching, creativity development, freedom of expression, argumentation, searching for alternative possibilities, development of communication skills, development of leadership skills. Pupils reacted with great enthusiasm and they together with teachers participated in the creation of activities – together with teachers they planned, implemented, and sometimes also evaluated the work. Also the analysis of the actual situation in the area of pupils’ motivation to join certain activities had been accomplished. Teachers were primarily interested in whether that was a part of the children’s inner or outside motivation. The results of that analysis have indicated further pathway into individual activity.

After the first year teachers started thinking about their work with gifted pupils. Through a dialogue in the group (critical friends) and brainstorming every teacher tried to complement, change and eliminate bad experiences from the past. Teachers kept good experiences, upgraded them, and at the same time created new innovative ideas. Teachers followed the principle – analysis of the past ensures future planning.

Given the programme offer and the target orientation of the enrichment programmes, the involved pupils were of all ages and grades (most often between the 4th and the 9th grade and onwards, when the first procedures of gifted pupils detection were over), however, the identified gift was not a precondition to be included in the programmes.
The result of that is an array of enrichment programmes which encourage divergent thinking, constructivist education and diverse paths to knowledge, which improve educational motivation, widen interests and ensure self – confirmation. The programmes from the area of arts are oriented to the encouragement of divergent thinking. The programmes of research are conceived on the constructivist learning, where an individual does not receive knowledge from outside, but constructs (builds) it on his/her own, through his/her own activity. The construction of knowledge takes place through the materialisation of one’s own experiences. Constructivistic conception of knowledge is based on the conviction that knowledge is not something objectively existing, independent from the one who learns and recognises, but it is a subjective construction (building), which is created through the process of materialisation of personal experiences by each pupil. The concept of planning and programme implantation is conceived so that it provides pupils a choice of programmes according to their interests, so, that they can create and help in the formation of their educational process, their research work, creativity, public performance… (i.e., personalisation of educational processes); they acquire knowledge and exchange experiences in different age peer-groups and connections, recognise their own potentials and discover inner motives for learning and also develop social skills, educational strategies, independence and responsibility for their work, self consciousness (e.g., for the promotion of their achievements, delivering new ideas, educational needs…). First impulses were based primarily on learning of pupils’ self confident behaviour in order to be able to better tell/express their knowledge, to dare ask question, develop and plan processes, etc. Within the enrichment programmes teachers offered contents which would awaken the pupils’ interest for new knowledge.

**Enrichment Programmes:**

The enrichment programmes cover different areas and thus offer pupils a diverse choice in terms of contents. Below, we are describing them according to individual activities:

- Artistic activities
- Research activities
- International activities
- Linguistic activities
- Social activities
ARTICIST ACTIVITIES

Artistic activities above all support the development of pupils’ artistic creativity. They cover artistic expression in all the areas – music, fine arts, literature, drama and film art. A joint objective of all enrichment programmes from artistic activities is on the one hand to get pupils familiar with the techniques, verified methods and possibilities of artistic expression (to give pupils the knowledge from artistic area, that go beyond the standards of regular curricula), and on the other hand to encourage pupils to develop their personal creativity, to direct them and help them in their search for individual ways of expression, to encourage them to learn from their own experiences, through self-activity, etc.

- Extracurricular activity in Theatre
  Here, pupils learned creative expression on the stage; they tested themselves in the dramatisation of texts, in declamations, and their proper interpretations of artistic texts. Together with their mentor who basically had the role of directing the process, they prepared a theatre presentation and played it for their peers or to other audience. (e.g., on the day of creativity).

- Extracurricular journalist activity and Extracurricular activity in editing school newsletter
  Under the supervision of their teacher – mentor pupils created different non-artistic and artistic texts. Besides the artistic area, the activity extended also to the research area and to social skills, since pupils prepared, collected and edited different materials (literature, fine arts, photography) for the school newsletter. Pupils collected contributions independently, they were active and innovative. School newsletter was also published at the web page:
  http://www2.arnes.si/~osljro2s/A_1_projekti/rodica_spica/rodica_spica.pdf

- Calligraphy
  The area of learning about calligraphy. Writing out words, clauses and short texts in the Gothic script, production of a caption with a proverb. In the times when pupils use more and more sophisticated modern technology and computers for communication and expression, the main objective of calligraphic activities is also to develop relationship to the written words, to aesthetics in writing.

- Sculpture and fine arts workshops
  Pupils got acquainted with fine arts theory and history of art as well as modern art; under the mentorship of their teacher they analysed and took a critical position to it. At the same time they tried out their own creativity in the area of fine arts or in material design and analysed their own work. They participated in arts colonies where they accumulated experiences and visited exhibitions.
  Within the artistic expression pupils got also acquainted with the possibilities of using modern technology. They presented their products in the internet exhibition:
  https://picasaweb.google.com/osnovna.sola.rodica/RazstavaLvz#
- **Film workshops, creative writing**
  Here, pupils learned about the world of film. Last year workshops took place within the international cooperation with a school from Bosnia and Herzegovina, and the mentor invited a distinguished Slovenian film director to participate. Pupils created interesting film products through the professional guidance of film director and his deputies who took them through all the stages of film production (from the conceptual design, scenario planning, filming, acting and directing to film editing.). Teacher transferred the activity of filming also to regular instruction where its method was used on various occasions (rendering text at Slovenian language instruction, the TV contents at the English language lessons etc.).

- **More music**
  Activities were designed for pupils who wanted to improve their musical and theoretical knowledge and to develop their musical creativity and to deepen their knowledge of musical theory. Under the guidance and directions of the teacher pupils created their own songs, instrumental music, accompaniments to songs or rendering songs of music compositions in an artistic way.

**RESEARCH ACTIVITIES**

As in artistic activities teachers – mentors also in the research activities aimed at two objectives – on the one hand to furnish pupils with knowledge, techniques and tools in order to help pupils to get skilled in the area of research work and to become effective in searching for answers to research questions. On the other hand teachers – mentors functioned as facilitators and catalysts – they tried to challenge pupils’ curiosity, a certain kind of basic motivation and interest which helps them decide for independent researching. Their aim was not to convey to pupils the research questions which they would then study by using the methodology they had mastered, and then reach (uniform) replies. The main objective of mentors in the research activities was to develop in pupils’ creativity, curiosity, divergent thinking and motivation for research work. During the research process pupils determined their fields of interest by themselves, they formulated research questions by themselves and with the assistance of mentors’ guidance and directions designed and carried out the research process by themselves.

- **Young researchers**
  Under the guidance of their teacher-mentor (directing, encouraging) they took on board research work in different areas – ethnology, history, Slovenian language, sociology, psychology, physics, mathematics, ecology and natural sciences. They independently prepared a work plan, they looked for and read literature, collected field data, processed the collected data, and prepared presentations by using the ICT technology.

  UNESCO web page – examples of movies prepared on the basis of certain research works: [http://www2.arnes.si/~osljro2s/A_1_projekti/unesco_Asp.htm](http://www2.arnes.si/~osljro2s/A_1_projekti/unesco_Asp.htm)
- **Little researcher, I research and verify**

Both activities, Little researcher and I research and verify, were dedicated to pupils of lower grades (aged 9 – 10). Work was done from natural sciences – planning, implementing, verifying and evaluating their own research work, filed work, preparation of presentations, etc. Pupils alone prepared and ask the questions, and looked for answers under the directions of their mentor. Some activities are explained and illustrated in the **APPENDIX 1**.

- **Quizzes and Riddles**

  Pupils got familiar with different types of riddle, quizzes, rebuses, crosswords, logic assignments, and at the same time they tested themselves in preparing similar and other hard mental nuts and made a competition among them.

- **Extracurricular activity in History – researching local history**

  Here the point was widening and deepening of their knowledge from special interesting themes of history, research work, searching through history sources and work in small groups. Pupils decided on researching a historical theme they were mostly interested in, they made all necessary steps of researching and then prepared presentations of their findings.

**MEDNARODNO POVEZOVANJE**

Based on the situation analysis and findings, that pupils within enrichment programmes and other activities missed a bit more international cooperation, the school has engaged itself in the last couple of years a lot more in the area of international projects.

They found out that international projects help pupils and teachers to achieve and improve certain knowledge and skills; not only in the area of the project theme, but they also ensure progress in the area of team work, planning and implementing activities as well as in case of using the ICT technology. Cooperation with a school of different country provides opportunities to communicate in foreign language and improves motivation for learning languages. Cooperation in international projects also strengthens pupils with new life recognitions, encourages the feeling of tolerance and ensures personal growth.

- **Comenius school partnerships**

  The project was initiated under the slogan: »I hear and forget. I see and remember. I do it and I understand.« (Confucius). The school has been active in this international project already for the second year, and has cooperated also with schools from Poland, Greece and Turkey. The central theme is children’s rights and children are in the focus of the project. The main objective is that children, teachers and parents get acquainted with the Convention of Children’s Rights and that they research, how those rights are ensured in individual countries. They have added another objective: learning about culture and environment of partner countries which is mostly done by international
exchanges giving another opportunity to exchange experiences and cases of good practice. The project activities involve also children with special needs. The main driver of the project is the international exchange of teachers and pupils. Through those exchanges they learn about other cultures and school practices of other countries.  
(http://comeniusjg.prv.pl/)

- **Comenius Regio**  
Within the international project of Comenius Regio they have been cooperating with other institutions from Domžale (facilitator is Municipality of Domžale) and other partners from Łódź in Poland. The main theme of the project is «biblio-prevention», the method of literature usage and/or creative writing in order to achieve qualitative changes in the emotional, behavioural, cognitive and/or social life. During each reading, the focus of every individual is on emotional and cognition reaction to the read text in order to evoke the transfer to each individual’s personal situation. The objectives of that programme are: exchange of experience, cases of good practice, theoretical findings, social gatherings through the theme of our project and strengthening the European dimension. Only experts participate in those exchanges, however, they transfer their experiences and new knowledge further down to their work with pupils. Polish and Slovenian partners created and put in place a web page which shows certain activities with pupils in the area of languages and the use of books for encouraging empathy, establishing relationships, overcoming taboos etc.  
(www.project-biblioprevention.eu)

- **e-Twinning**  
e-Twinning is an action of Lifelong Learning Programme, concentrating on the encouragement of implementing the ICT technology in education. Pupils cooperate with partner schools from Europe through internet classroom. The exchange of data and chatting takes place via different communication tools as for example *e-chatrooms, e-mail, forums.* As a result we have several products (textual and data files, computerised presentations etc.) and publications in the internet classroom. At the moment they are connected with the school from Łódź, Poland, which is their partner also in the project of Comenius Regio, and the work includes elements of biblio-prevention. Pupils read the same book and then discuss it through a guided chat via internet tools. The communication between pupils has recently been done in English language, and they discussed the contents of the book of D. Hill “We see each other, Simon”. Findings: despite different culture and the geographical distance pupils had similar way of thinking, they felt similar emotions and responded similarly to the problems of modern world. Pupils prepared their presentation on ppt, they discussed about the book they had read, and the project was presented by the two mentors also at the international conference called The Miracle of Wordstudio Čudežnost besed (link: http://newtwinspace.etwinning.net/web/p16906).
Another e-Twinning connection took place also between pupils of the school and the school in Poland, Jelenie Gore, which was one of the partner schools in the v Comenius School Partnerships. The theme was children’s rights. The results were several electronic products. Link: [http://newtwinspace.etwinning.net/web/p19756](http://newtwinspace.etwinning.net/web/p19756).

- **ACES project**

Central European countries are inter-connected through the programme ACES (Academy of Central European Schools). Within the project »Keep trying…«, which is focused on searching for ways of successful conflict solving, the school is connected with schools from Croatia and from Bosnia and Herzegovina. Also in this project the work takes place through international exchanges where pupils can join international workshops where they, by using different means of expression (drawing graphite and strips, production of mosaic, acting dramatic scenes, filming, photographing, competing in debates and mediation, participation I sport activities etc.), search for ways of how to solve conflicts in a peaceful way, how to express themselves with the help of art and how to make friendly contacts through common experiences. Photo snaps and reports have been promptly published on the project web page created by pupils and mentors of all participating school in the project: [https://sites.google.com/site/rodicabrckopula/home](https://sites.google.com/site/rodicabrckopula/home).

A demonstration of activities within mobility ACES; last activities for 2010-2011 [http://www.aces.or.at/ac_gal.asp?b=4947&ID=274&phase=1&bild=img_274_1_11.jpg &n=1](http://www.aces.or.at/ac_gal.asp?b=4947&ID=274&phase=1&bild=img_274_1_11.jpg &n=1)

- **Young in action: With mediation and debate against violence**

Debate clubs of four countries are connected within the programme Young in action. The main event of that cooperation was the week they spent together in Zagreb in December 2010. On that occasion a group of seven pupils – debaters – was in the company of their peers from Bulgaria, Romania and Croatia. They jointly discovered what is hiding in the museums, they learned about mediation and participated in the international debating competition, where they debated in English language.

**LINGUISTIC ACTIVITIES**

- **We Create in English, English in a different way**

Linguistic activities (separate workshops are prepared for different age groups) are designed to gain additional motivation of pupils for English language. For younger pupils (aged 6 – 7) the emphasis in the workshops is on various ways of accepting language without the necessity for pupils to talk and write a lot independently already at the beginning of schooling. Also in case of the workshops for older pupils (aged 9 and more) the mentor wanted to distance herself from classical language learning (grammatical rules and vocabulary) and tried to bring closer to pupils also other aspects of English language (and English literature) – by reading interesting books and
discussing about them, by participating at the competitions of creative writing, by discussions about English culture and customs, as well as by a practical case of preparing a typical English breakfast.

**RHETORIC, SOCIAL SKILLS**

Activities from the area of social skills, performing, debating, are important for the development of young people’s social competences. A number of objectives that those activities are aimed at are a part of various other activities presented here. We could therefore say that those activities, encouraging pupils’ social competences, are in fact the basis which should be reasonably developed in all pupils as an element of lifelong learning in order to turn them into active, engaged and socially aware citizens.

- **Workshop on public performance**
  Pupils learned about the principles of public performance and did some practical training (mentor invited distinguished experts in this area to participate, which meant for pupils in additional motivation). PowerPoint presentation from the topic of children’s rights that was (through searching for materials and information on the internet and with group discussion) independently prepared by pupils on the occasion of the International Day of Children’s Rights and on the Day of Human Rights is available at: [http://www2.arnes.si/~osljro2s/A_47_dogodki_11/UNIVERSAL%20CHILDRENS%20DAY.pptx](http://www2.arnes.si/~osljro2s/A_47_dogodki_11/UNIVERSAL%20CHILDRENS%20DAY.pptx)

- **Debate club**
  Within the Debate clubs pupils had regular preparations for the debate tournaments (they took positions to debate statements, looked for information, arguments pro et contra, discussed different topics, etc.) and participated at debate competitions (also at the international level). Pupils put their contribution on their debate club web page: [https://sites.google.com/site/debatniklubrodica/o-debati](https://sites.google.com/site/debatniklubrodica/o-debati)

- **Voluntarism**
  We speak of encouraging voluntary activities of young people. With the support and coordination of their mentors pupils joined different voluntary activities that they could find in line with their own interests (helping nursery school teachers, help at work with children with special needs at schools with adjusted programmes, help at heavy manual work at schools, etc). Pupils by joining different activities got certain experiences and new knowledge, they built their own personality and developed their own interests and solidarity values.
- **Reading workshop**
  In the reading workshop which was grounded on the principles of biblio-therapy (biblio-preventive) there were organised group discussions moderated by two mentors on the read through literature. Pupils talked about their experiences during reading and with literary materials opened discussions on different themes pressing on young people, even the so called taboo themes. Through group discussions they exchanged experiences, developed empathy and group cohesion.

Concerns about the ideas within individual programmes were left over to pupils, and also their implementation. Teachers only occupied a role of directing facilitator (directing ideas, processes and knowledge of pupils, as for example team work and mutual cooperation), as well as the role of organiser and motivator. As motivator they aimed at pupils who kept silent, who did not cooperate and kept behind. The work in individual programmes was organised in the way that pupils first of all asked the research questions, (searching for ideas, developing sensitivity for problems), then they prepared implementation plan, and then f the performance followed and at the end the evaluation of work done.

**Assessment**

There was no classical, school assessment in the enrichment programmes. Teachers evaluated learning outcomes in different ways, and above all such evaluation surpassed the limitations of regular school assessment (and at the same time it complemented the latter. Evaluation characteristics were as follows:

- regular prompt information on individual phases of learning and/or achievements (through activities of during consultative hours),
- the pedagogical communication between teacher and pupil was enriched (pedagogical dialogue),
- teachers and pupils evaluated processes with the help of different evaluation approaches (questionnaires, scales, reports, interviews, etc.),
- presentation of achievements or products at the level of school and also wider (public performance, exhibition promotion …), with the help of modern technical solutions (e.g., films, animated films, research works with multimedia presentation, presentation for teachers’ council, to parents…) as well as with artistic exhibitions, poetry collection, annual school calendar, independent design of internet pages for activities (e.g., web page of debate club).
Within the project the school developed a folder of personal achievements which was managed by pupils themselves. The folder contained products, files, assignments and short teachers’ reflections. Pupils got very quick feedback information on their advancement.

**ICT**

Pupils and teachers used for their work internet and interaction plates. The school is equipped with adequate technology and pupils had access to computers while performing their activities. Teachers were present and gave directions and advice to pupils on the selection of their materials.

**Learner pathway**

Teachers, leaders of individual activities, generally met with pupils once a week. Quite often the programmes were carried out on Saturdays when there was no regular instruction. Programmes were implemented as out of curricular activities (free interest activities, additional lessons, hours of group and individual help, and some solutions had gradually become a part of curriculum). Teachers defined the area of work for children in the group. Pupils then discussed the theme and presented their ideas about the theme. Teachers prepared working lists, which gave pupils directions. Pupils then decided for their learning process, they asked research questions, collected data (e.g., with help of ICT) etc. After the completed process they presented their results within the group and did the reflection on their work, which was then written in the portfolio. Together with pupils teachers then finished their joint evaluation.

**Teachers and pedagogical Approach**

It was typical for the enrichment programmes that they were shaped and planned jointly with the help of teachers and pupils. Thus, we got a programme of activities, rich and diverse, and open to changes. Besides that, there were also excellent results of work in the »free environment«. Pupils wanted to show their success and work to a wider public, to their parents, school mates, and other teachers. From that reason they prepared the Day of Creativity from A to Z where they gave performance on their creations, theatre presentations, artistic programme, presentation of research works etc.
Learning takes place in different forms:
- work in the nature (field work, research work, camps, etc.),
- producing diverse social interaction, through which they developed their social skills and competences,
- introducing active learning methods (observing, comparing, analytical thinking, use of knowledge in new situations, cooperational learning, project work etc.),
- disseminating social interaction with peers at the same location, peers in Slovenia, peers abroad, learning between generations, etc.),
- encouraging active multilingualism and learning about different cultures,
- use of modern technologies as the source of knowledge and as tools for the promotion of knowledge.

Experiences and authenticity are significant elements of learning.

ILE Structure

The programme has been mostly carried out in the school’s premises, occasionally also outside (field work, camps, visits to different institutions, museums, institutes, working environment). The school has excellent spatial capacities for the implementation of activities, and also a satisfying ICT support (including well qualified teachers). The local community, the founder of the school, adequately has supported the school financially for regular maintenance, investments and possibilities of purchasing additional equipment. Quite often have parents offered their help (as donators they helped providing the school with materials or as experts for certain areas), as well as entrepreneurs from the local environment. Some activities opened up opportunities for active participation of parents (e.g., organisation of visits, presentations), and there was also a lot of possibilities of more intensive participation and the role of parents (co-organisers, initiators, also promoters). However, the role of parent was limited, as it is typical in the Slovenian families that both parents are fully occupied.
Enrichment programmes appeared next to the regular curriculum and thus complemented it in a qualitative and quantitative way. Diversified offer of contents and different areas made pupils possible to:
- select programmes along with their interests,
- create their own processes of learning, researching, creating, public performing, etc. (personalisation of educational processes),
- acquire their knowledge and exchange experiences in heterogeneous peer to peer connections,
- recognise their potentials and discover inner motives for learning,
- develop social skills, learning strategies, independency and responsibility for their work, self confidence (e.g., in case of promotion of their results, in creation of new ideas, educational needs, etc.).

III. Nature and Quality of the Learning

The school has by introducing the enrichment programmes implemented the education concept focused on pupil, it has emphasised his active role and positioned teacher in the role of co-creator of new knowledge and new skills of pupils. They reached the increased motivation by providing pupils with the opportunity of selecting freely their programmes according to their interests which is carefully managed by the teachers in the way that pupils recognise their own potentials and discover inner motive for learning. That has been confirmed in the interviews with pupils, participating in certain programmes. We interviewed 5 pupils included in the programmes of artistic and research activities. The pupils underlined above all a very relaxed atmosphere between them and teachers. They also mentioned that they had noticed bigger engagement of teachers who were leading the programmes as it is the case in regular instruction. They felt enthusiastic about the team work as it encouraged closer cooperation among the group members, mutual understanding and the feeling of mutual help. In case of research activity they were inspired by the possibility of suggesting the themes, as for example for an experiment or for excursion. After they had agreed on the theme the teacher prepared for them a description of the assignment and working papers, to which they referred in their work. In order to reach a result they had to work together with other pupils, members of the group. They distributed their tasks, agreed on deadlines, and helped each other if somebody could not comply with his task. At the end they prepared a presentation for their class, and sometimes
also for the entire school and for their parents. As far as artistic work is concerned, they selected a book, they read it, and then prepared a drama play in which the team members had particular roles. Pupils emphasised in the interview that due to the fact, that they could suggest themes they were interested in, their work was much deeper and their motivation was higher. From their responses we noticed that a very high learning motivation and curiosity was typical for them. They did not feel sorry for the spare time they spent on the programmes, as they quite often had to work in the afternoons or on Saturdays. In the enrichment programmes they mostly liked the relaxed atmosphere, respect of their interest, interesting themes, the working methods, and the opportunity of getting involved in different fields. They were partly annoyed at the fact that they had to work during their leisure time, above all after regular classes, and that there was not enough time for experiments. The interviewed pupils agreed that the work in the enrichment programmes influenced their occupational interests; the majority of them claimed that they would continue their education at grammar school and then at the university studies linked with the contents delivered in the programmes (natural sciences, literature, law, etc.).

Teachers – promoters emphasised in the interview that they had systematically introduced pupils in the research methodology (above all in the programme Little Researcher); besides, the programmes were managed in the way that pupils could show their strong areas. While working they studied themselves (recognised their interests, even occupational) and built positive self–image. With the introduction of programmes teachers also professionally developed through various forms: critical friendship, exchange of experiences, mutual qualification and inclusion into various seminars provided by external organisations. Furthermore, team work among teachers was strengthened as well as the sensitivity for pupils’ individual needs. During the implementation of programmes the individual and team work with pupils were intertwined. Self evaluation and reflection were important factors of work with pupils directed by teachers. Thus, pupils established a capability of an insight and self regulation into their work. Teachers who started researching their teaching practice and verifying certain theoretical solutions, who started looking for new ways of reaching knowledge, who placed learning before teaching processes and who began to put in place the changed role of teachers at schools, have been included in the implementation of the programmes. First reaction came from teachers, responsible for natural science subjects, and then also others (teachers of foreign
languages, mother tongue, etc.) At the moment 15 teachers participate in the enrichment programmes. The school and the teachers are connected with outside organisations and experts in certain areas (e.g., artists, researchers – scientists, secondary school professors etc.

IV. Impact and Effectiveness

There are a number of documentary resources on the work done so far which describe individual programmes: promotion and publication of research works, photo reports, publication on the schools web pages, school newsletter, poetry collection, annual calendar, films, animated films, TV and radio broadcast, publications in the local newspaper, scientific discussion, publication of teachers programme performers in the scientific magazines, presentations of teachers and pupils within the organised qualification and training of teacher staff, presentations prepared by pupils for other pupils, for teachers’ council, and for the annual public presentation, exhibitions at the school premises and outside institutions (library, youth centre, etc.).

Didactic solution and methods of work in the enrichment programmes which complemented regular school programme gradually spread into the regular programme. The school has thus become more and more pupil-oriented and emphasised active role of pupils and teachers as partners and co-creators of new knowledge, skills and competences.

The work in the enrichment programmes had a great impact on the higher dynamics of educational process – changing contents, working methods and the use of different approaches. Through that various approaches emerged which encouraged social competences – e.g., performances and presentations for the entire school and for parents, running debates and mediations, mutual harmonisation of content selection while respecting arguments of other communicationally weaker group members (shy pupils), cooperation in »mixed« groups (children of different socio-economical status, children with various needs and interests etc.). As opposed to regular school programmes pupils started to develop their learning, recognition and problem solving strategies, their acceptance and respect of other partner’s opinions more intensively and systematically. A teacher – promoter pointed in his interview at higher pupils’ intensity and motivation as a consequence of their work in the enrichment programmes. Besides changes in pupils he also pointed at certain changes in teachers who had been performing the enrichment programmes as for example higher flexibility in the use of different didactic
approaches as well as respect and tolerance to different pupils’ ideas. In addition, there was higher intensity of cooperation with institutions which educate future teachers at the level of connecting university professors with practice and connections with students – future teachers. The school collective increased their cooperation among teachers and exchange of experiences. The role of the project leader could have been described as the first one among equals.

While studying their own practice, they increased teaching results, developed originality, introduced their prior well planned teaching practice, developed it furthermore and met newly discovered novelties. And all that would be fruitless unless they took into account children’s creativity – teachers provided pupils with free learning environment. It was confirmed through the results of a questionnaire for the involved pupils (satisfaction analysis) and by the results of those activities (animated films, movies, literary creations, poetry collections, theatre presentations, research works, demonstration videos, etc.). The results have been presented within the schools Day of Creativity and Innovativity from A to Z, which the school organises each April.

As a result of the work in the ILE project we can mention also the entry of the school into the international project Fibonacci. An important result of enrichment programmes is that the teachers performing those programmes include new working approaches also into their work with pupils within the regular school instruction. The findings and the results of the project work have been carefully planned and introduced as developing good practice (cooperational learning, portfolio, team planning and teaching, film production after accomplished domestic reading, poetry collection, etc.). All that has so far been reflected in the satisfaction of pupils, parents and in the exceptional results at competitions, as well as in the presentations delivered within Slovenia and outside (Bosnia, Poland, Greece, Turkey).

About the work done so far, several documentary materials have been produced which describe individual programmes: promotion and publication of research works, photo reports, publication on the schools web pages, school newsletter, poetry collection, annual calendar, films, animated films, TV and radio broadcast, publications in the local newspaper, scientific discussion, publication of teachers programme performers in the scientific magazines, presentations of teachers and pupils within the organised qualification and training of teacher staff, presentations prepared by pupils fort other pupils, for teachers’ council, and for the annual public presentation, exhibitions at the school premises and outside institutions (library, youth centre, etc.).

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Thus the school has complemented its regular school programme with additional contents from the enrichment programmes; they have made a shift from the teaching processes to the process of leaning, they increased inner motivational learning drivers of pupils included in the activities and achieved an optimal transfer to all other educational areas. The enrichment programmes have also encouraged diversified opportunities for the promotion of knowledge, creative and research achievements, communicating and understanding in mother tongue and in foreign languages.

Pupils have presented their successes and their work to a wide audience, to their parents, to their school mates, and other teachers. Thus, they established the Day of Creativity from A to Z by themselves, by presenting their creations, theatre presentations, artistic programme, presentation of research works, etc.

The enrichment programmes are among pupils at the school more and more desired, as they have noticed a large pupils’ response within the programmes (each year the number of involved pupils has been increasing), also the number of new proposals delivered by teachers, pupils and parents has increased. This has been proved by the evaluation teachers’ reports. Most involved pupils have in their joint reflection to mentors reported that they also have noticed their advancement and thus become more self confident. Mentors have noticed that pupils really need a loose programme which they can complement with their ideas and solutions. Teachers have also noted that several pupils outdo them in mastering modern technology (computer programmes, communication technologies, video, etc.) and here they see an exceptional opportunity for the enrichment programmes to activate pupils for regular instruction. The number of enrichment programmes has in the course of years increased:

- the number of programmes in the school years

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<tr>
<td></td>
<td>10</td>
<td>10</td>
<td>14</td>
<td>15</td>
<td>18</td>
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</table>

- the number and the proportion of included pupils in the programmes:

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<tbody>
<tr>
<td></td>
<td>76  13%</td>
<td>84  15%</td>
<td>115  20%</td>
<td>121  20%</td>
<td>163  27%</td>
</tr>
</tbody>
</table>
Teachers have even detected a whole year pupils’ perseverance in the activities (the drop out was minimal).

**Further information at:**

www.fibonacci-project.si - http://fibonacci-project.si/dogodki/dogodki.html
http://www2.arnes.si/~osljro2s/A_1_projekti/rodica_spica/rodica_spica.pdf
https://picasaweb.google.com/osnovna.sola.rodica/RazstavaLvz#
http://www2.arnes.si/~osljro2s/A_1_projekti/unesco_Asp.htm
http://newtwinspace.etwinning.net/web/p16906
http://newtwinspace.etwinning.net/web/p19756
https://sites.google.com/site/rodicabrckopula/home
http://www.aces.or.at/ac_gal.asp?b=4947&ID=274&phase=1&bild=img_274_1_11.jpg&n=1
http://www2.arnes.si/~osljro2s/A_47_dogodki_11/UNIVERSAL%20CHILDRENS%20DAY.pptx
https://sites.google.com/site/debatniklubrodica/o-debati
APPENDIX 1:

ENRICHMENT PROGRAMMES AT RODICA ELEMENTARY SCHOOL, SLOVENIA

SVN 007

Primary School Rodica

Kettejeva 13, Domžale

VESELOŠOLSKI RAZISKOVALEC – ROKAVICA ZMAGOVALKA

HAPPY SCHOOL RESEARCHER – THE WINNING GLOVE
The following girls (pupils of the 5th grade of the nine year primary school) participated in the research work: Špela Skala, Neža Škofljanc, Maša Marija Vrtačnik, Lara Tekavc.

Mentor: Sonja Koželj-Juhant

We are a group of girls - pupils attending the circle entitled “Little Researcher (Raziskovalček)”. We are more than happy to make new discoveries in nature. We liked the experiments on inanimate nature very much. We therefore decided to do a research work exactly from that scientific area.

Last winter has spared us with frost; however, right at the moment when we were deciding what to do our research from it was terribly cold. A number of experiments crossed our minds. Due to the feeling of all that cold in our hands we decided on the following research question: WHAT MATERIAL SHOULD GLOVES BE MADE OF IN ORDER TO KEEP THE WARMTH AS LONG AS POSSIBLE?

First of all we decided to have a look into the literature and on the internet to verify what are gloves made of to protect people from too much cold. We got acquainted with several types of materials. We produced some materials ourselves, too, and we prepared the experiment plan. We had read in the literature that the temperature would pass from a spot with higher temperature to the spot with lower temperature, and that this transfer would stop when the two temperatures became equalized. And this was exactly the information we needed to help us prepare the experiment plan.
The study plan was as follows:

- From the materials (silk, cotton, wool, leather, fleece - polyester fibres, cotton wool, plastic) we were going to produce gloves of approximately the same size.
- We were going to heat up the interior of the gloves with the warm air from hair drier.
- Since it was hard to rely on our temperature senses (being too subjective), we were going to measure the temperature in each glove at the same time.
- We were going to put all the gloves with a thermometer inside on the external windowsill.
- Every 5 minutes we were going to read the temperature from each thermometer and immediately declare “the winning glove”, i.e., the glove, which was going to maintain the warmth the longest.

We set the hypothesis according to our plan. We all were unanimous in our prediction that “the winning glove” would be the one from wool.
We prepared the helping tools (gloves from different materials, measuring table, thermometers) and started with the experiment.

We made gloves about the same size produced from different materials. Of course, some of them were already made before.

Then we heated them up with warm air on the inside by using hair dryer.

Then we measured the initial temperature on the inside of each glove.

We put the data in the table below.
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</thead>
<tbody>
<tr>
<td>Silk</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Cotton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Wool</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Leather</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Fleece</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td></td>
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</tbody>
</table>
We then took the gloves outside where the temperature was -7 degrees Celsius.

Every 5 minutes we checked the temperatures displayed on the thermometers.

The results of measuring were as follows:

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</tr>
</thead>
<tbody>
<tr>
<td>Silk</td>
<td>25</td>
<td>15</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>7,5</td>
<td>6</td>
</tr>
<tr>
<td>Cotton</td>
<td>24,6</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>7,5</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Wool</td>
<td>24,4</td>
<td>14</td>
<td>9</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>4,5</td>
</tr>
<tr>
<td>Leather</td>
<td>25</td>
<td>14</td>
<td>10</td>
<td>7</td>
<td>5,5</td>
<td>5,5</td>
<td>5</td>
</tr>
<tr>
<td>Fleece</td>
<td>24,3</td>
<td>11</td>
<td>7</td>
<td>4,5</td>
<td>4,5</td>
<td>4,5</td>
<td>4</td>
</tr>
<tr>
<td>Cotton</td>
<td>24,7</td>
<td>20</td>
<td>12.5</td>
<td>6,5</td>
<td>6,5</td>
<td>6</td>
<td>5,5</td>
</tr>
<tr>
<td>Wool</td>
<td>Plastic</td>
<td>24</td>
<td>11</td>
<td>8</td>
<td>6</td>
<td>5.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Bearing in mind that we started with the first measuring at the temperature (at about) 24 degrees Celsius, the cotton glove remained the warmest for the longest time. That was our winning glove.

The experiment rejected our hypothesis. However, we were highly surprised at the obtained results. This is probably (also) the reason why the underwear is produced from cotton.

Primary School Rodica

Kettejeva 13, Domžale

**VESELOŠOLSKI RAZISKOVALEC - STROČNICE V ZEMLJI**

**HAPPY SCHOOL RESEARCHER - PULSE IN SOIL**
The following girls (pupils of the 5th grade of the nine year primary school) participated in the research work: Polona Repar, Urša Štepec, Maruška Juhant, Urša Koželj, Tina Jeretina, Neža Leben.

Mentor: Sonja Koželj-Juhant

At the age of ten we are attending the natural science circle at our school. We love discovering the living and inanimate nature. And in our group we all like gardening very much. We really like planting, watering, fertilising, and …. plants and vegetables. We have many times observed and monitored the growth of a certain plant.

This time we decided to take a closer look at pulse.

We went to the library and checked on the internet how many different sorts of pulse there are and discovered their characteristics. We were very surprised at the number of different pulse that exists in practice. We also asked our parents and our grandparents what they could tell us about those plants and vegetables. Of course, we found a lot of excellent kitchen recipes and advice on cooking pulse and on their proper planting.

And planting was the theme that we wanted to research a bit more. Each of us said what she was interested in, and so we came to our research question, as follows:

WHAT LEGUME WILL SPROUT THE FASTEST?

Naturally, we agreed that the conditions (light, watering and warmth) should be equal, and the seeds of different sort. Then we wanted to observe also an upgraded level to this one; we changed the type of the soil. The result was a new research question as follows:
WHAT SORT OF LEGUME WOULD SPROUT THE FASTEST - AND IN WHAT TYPE OF SOIL?

We prepared a research plan:

- We were going to plant the seeds of different type (broad bean, bean, chick-pea, soya and pea) 4 cm deep into the pots of the same size containing different soil (forest, garden, sandy, clay) at the same quantity
- We were going to water them once a week, each pot with 50ml of water.
- We were going to monitor pots, measure sprouts and record our measurements and observations.
Then, it was the time for our hypothesis. It was as follows:

<table>
<thead>
<tr>
<th>Possibility</th>
<th>Number of pupils predicting a certain possibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest soil – beans</td>
<td>4x</td>
</tr>
<tr>
<td>Garden soil – peas</td>
<td>2x</td>
</tr>
</tbody>
</table>

We then made a plan of the tools for our experiment: the seeds of pulse, pots of equal size for plantation, garden soil, forest soil, sandy soil and clay soil, measuring cylinder, meter.

**PROCEEDINGS:**

- First of all we verified and compared the pulse seeds among themselves (their form, colour, size, feeling, their cut-through – the inside and also their taste) as well as different types of soil regarding its touch, humidity, colour, smell, composition.
• Then we put different types of soil into the pots (the same amount each).
• We planted in them different sorts of pulse seeds 4cm deep.

• We put labels on the pots describing their contents.
• We watered the pots with 50 ml of water (then one time weekly) and put the pots to a warm and bright place in the classroom.
- Then we waited for the first sprouts, we put down our findings into the table and we measured the size of the plant.

<table>
<thead>
<tr>
<th></th>
<th>GARDEN SOIL</th>
<th>FOREST SOIL</th>
<th>SANDY SOIL</th>
<th>CLAY SOIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEANS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHICK-PEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOYA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BROAD BEAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEAS</td>
<td></td>
<td></td>
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</tbody>
</table>
We were planting on 23 January, 2008. The results of the germination were as follows:

<table>
<thead>
<tr>
<th></th>
<th>GARDEN SOIL</th>
<th>FOREST SOIL</th>
<th>SANDY SOIL</th>
<th>CLAY SOIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEANS</td>
<td>9 Feb., sprouts</td>
<td>31 Jan.</td>
<td>12 Feb.</td>
<td>/</td>
</tr>
<tr>
<td>CHICK-PEA</td>
<td>23 Feb.</td>
<td>14 Feb.</td>
<td>14 Feb.</td>
<td>/</td>
</tr>
<tr>
<td>SOYA</td>
<td>16 Feb.</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>BROAD BEAN</td>
<td>12 Feb., sprouts</td>
<td>/</td>
<td>29 Feb.</td>
<td>/</td>
</tr>
<tr>
<td>PEAS</td>
<td>11 Feb., sprouts</td>
<td>1 Feb</td>
<td>25 Feb.</td>
<td>/</td>
</tr>
</tbody>
</table>
Like we all had already predicted the beans in the forest soil were the fastest in sprouting.

After that we measured once a week the height of the sprouting plants and observed changes.

Measurements on 30 January, 2008

<table>
<thead>
<tr>
<th></th>
<th>GARDEN SOIL</th>
<th>FOREST SOIL</th>
<th>SANDY SOIL</th>
<th>CLAY SOIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEANS</td>
<td></td>
<td>0.5 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHICK-PEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOYA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Measurements on 6 February, 2008**

<table>
<thead>
<tr>
<th></th>
<th>GARDEN SOIL</th>
<th>FOREST SOIL</th>
<th>SANDY SOIL</th>
<th>CLAY SOIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEANS</td>
<td></td>
<td>2.5cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHICK-PEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOYA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BROAD BEAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Measurements on 13 Feb, 2008

<table>
<thead>
<tr>
<th>Crop</th>
<th>Garden Soil</th>
<th>Forest Soil</th>
<th>Sandy Soil</th>
<th>Clay Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peas</strong></td>
<td>6 cm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Beans</strong></td>
<td>9 cm</td>
<td>6.5 cm</td>
<td>0.6 cm</td>
<td></td>
</tr>
<tr>
<td><strong>Chick Pea</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Soya</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Broad Bean</strong></td>
<td>13 cm</td>
<td></td>
<td>2.7 cm</td>
<td></td>
</tr>
<tr>
<td><strong>Peas</strong></td>
<td>7.3 cm</td>
<td>9 cm</td>
<td>5 cm</td>
<td></td>
</tr>
</tbody>
</table>

### Measurements on 27 February, 2008

<table>
<thead>
<tr>
<th>Crop</th>
<th>Garden Soil</th>
<th>Forest Soil</th>
<th>Sandy Soil</th>
<th>Clay Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beans</strong></td>
<td>12 cm</td>
<td>8 cm</td>
<td>1 cm</td>
<td></td>
</tr>
<tr>
<td>Plant</td>
<td>Height A</td>
<td>Height B</td>
<td>Height C</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>CHICK-PEA</td>
<td>9cm</td>
<td>19cm</td>
<td>3cm</td>
<td></td>
</tr>
<tr>
<td>SOYA</td>
<td>5cm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BROAD BEAN</td>
<td>20cm</td>
<td>5cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEAS</td>
<td>13cm</td>
<td>19cm</td>
<td>8cm</td>
<td></td>
</tr>
</tbody>
</table>
We have, therefore, noticed that beans in the forest soil sprouted the fastest, and peas in garden soil followed. Later on also broad bean in garden soil, chick pea both in garden and forest soil sprouted. Soya had sprouts only in garden soil. Neither of seeds sprouted in the clay soil. We believe that this soil was too heavy and seeds could not break through.

After the germination the broad bean plant grew the fastest, followed by beans and peas. Soya was the slowest.

The garden soil proved as good for pulse (artificially fertilised), then the forest soil followed and after that the sandy soil. Clay soil was the worst.

Those were our results and we reported them also to our grandmothers, who were also doing the gardening.

Primary School Rodica
Kettejeva 13, Domžale

VESELOŠOLSKI RAZISKOVALEC - ŠOLSKE BARVE

HAPPY SCHOOL RESEARCHER - SCHOOL COLOURS
Pupils participating in the research work (5th grade of the nine year primary school): Nik Jerkič, Teja Škarja, Jasna Kešnar, Žiga Podbevšek.

Mentor: Sonja Koželj-Juhant

We are aged ten and we like attending the natural sciences circle at our school. We learn a lot about the living and inanimate nature. The four of us gathered in a group because we all like doing chemical experiments.

When we were thinking of what our research question should be, we by pure accident found a conclusion. During a fine arts lesson Žiga stained his white pullover by black Indian ink. He was extremely worried whether his mother would be angry and if the stain could be washed away. And we got the following research question:

WHAT COLOURS, USED AT SCHOOL, COULD BE CLEANED WITH WARM WATER?
We know that we have at school only colours harmless for health and produced on water basis. We have found that information on the internet. And we decided to test some of those colours if they are water dissolvent and of so, in what time.

We worked out the following plan:

- We were going to drop different types of colours on the blotting paper.
- We were going to dip it into cold and warm water.
- We were going to look at whether the water got coloured and if the colour sank to the bottom.
- We were going to put the results into the table.

Our tools were as follows: glass goblets, warm water, cool water, blotting paper, different types of colours we use at school (markers, porcelain colour, Indian ink, silk colour, acrylic colour, textile colour, glass colour), timer.

All of us supported the following hypothesis: “The Indian ink is going to dissolve the fastest and it will happen in warm water.”

The experiment proceedings:

- We poured 1 drop of colour onto the blotting paper.
• We dipped simultaneously all the blotters, each into their own glass.
• The experiment was twofold, since one colour went both into the warm and also cool water.
- We monitored changes in blotters and the colouring of water, as well as the appearance of its sediments.
- At the same time we measured the time in which (if so) the colour dissolved from the blotter into the water.
During our observations we saw beautiful patterns of dissolving colours upon contact with water.
We put our findings into the table below.

<table>
<thead>
<tr>
<th>COLOUR</th>
<th>WARM WATER</th>
<th>COOL WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker</td>
<td>Water gets beautifully and intensively coloured after 1, 24 min.</td>
<td>Water gets coloured after 1.37 min.</td>
</tr>
<tr>
<td>Porcelain colour</td>
<td>Is washed away from the blotter already after 1 min. Water gets coloured.</td>
<td>Is washed away in 20 sec later than in warm water - water gets coloured.</td>
</tr>
<tr>
<td>Indian ink</td>
<td>Remains on the blotter after 30 min.</td>
<td>Remains on the blotter after 30 min.</td>
</tr>
<tr>
<td>Silk colour</td>
<td>Water gets gently, slowly coloured after 2 min.</td>
<td>Water gets coloured after 10 min.</td>
</tr>
<tr>
<td>Acrile colour</td>
<td>Water does not get coloured at all, the colour sinks to the bottom.</td>
<td>Water does not get coloured at all, the colour sinks to the bottom.</td>
</tr>
<tr>
<td>Textile colour</td>
<td>Water gets slowly coloured after 2,47 min.</td>
<td>Water gets slowly coloured after 12 min.</td>
</tr>
<tr>
<td>Glass colour</td>
<td>Water gets coloured after 5 min.</td>
<td>Water gets coloured after 5 min.</td>
</tr>
</tbody>
</table>
We therefore found out that we would get away with it in the easiest way if we stained ourselves with the porcelain colour. This colour washed away from the blotter the fastest. This happened even faster in warm rather in cool water. All other colours dissolved in cool water more slowly.

Our hypothesis was not approved since the Indian ink did not get washed away from the blotter even after 30 minutes. The stubborn stain remained there.

Primary School Rodica
Kettejeva 13, Domžale

VESELOŠOLSKI RAZISKOVALEC - VRSTE GNOJILA

HAPPY SCHOOL RESEARCHER - TYPES OF FERTILISERS
Pupils participating in the research work (5th grade of the nine year primary school): Lea Hrovat, Ana Lamberšek, Meta Plaznik, Laura Maučec, Žan Girandon.

Mentor: Sonja Koželj - Juhant

The five of us are a curious group. We are attending the natural science circle at our school where we constantly ask and as questions.

We have a lot of questions; however, we decided to find the truth in connection with the following question. We all the time hear from the advertisements what is better and what is not. And merchants again tell us their own truth. And we have found the answer to our research question through the following experiment:

WHICH TYPE OF FERTILISER IS THE MOST EFFECTIVE?

We had heard that fertilisers could be bought in different forms (in powder, granules, in sticks, as bio fertiliser, as a liquid, etc). Which one is effective depends on the plant we want to grow. We found the answers to those questions via internet and by visiting an agricultural cooperative, where we were explained and shown the functioning of fertilisers.

We then made a plan for our experiment and prepared the helping tools (pots, soil, watering pot., seeds, humus of compost, horse manure, stick fertiliser, powder fertiliser).
We knew that we could have only one variable, i.e., various forms of fertilisers. All other things would have to remain the same.

We put the same amounts of soil into the same size pots. We added to each soil its own fertiliser, planted seeds 3cm deep and watered with 50ml of water.
We put everything to a place in our classroom that was bright and warm enough. We watered once a week.
We observed the growth and looked for the winner.

Our prediction was that the seed would sprout the fastest with the help of the artificial fertiliser, more precisely, the one in the form of powder. We assumed that this was because the fertiliser dissolved in the water the fastest.
The results of our observations were as follows:

<table>
<thead>
<tr>
<th>NATURAL FERTILISER</th>
<th>Humus</th>
<th>Seeds sprout in 16 days.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horse manure</td>
<td>Seeds sprout in 9 days.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ARTIFICIAL FERTILISER</th>
<th>Powder fertiliser</th>
<th>Seeds do not sprout at all even in 30 days.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stick fertiliser</td>
<td>Seeds sprout in 6 days.</td>
<td></td>
</tr>
</tbody>
</table>

The seeds with stick fertiliser therefore sprouted the fastest. Although we had predicted that it was going to be the powder fertiliser. But, that sample did not germinate at all. We again asked the employee in the agricultural cooperative for his opinion and he claimed that this happened because we did not water enough and because we once let it dry out too much. In this cases the fertiliser loses its function.