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THE WORK OF ART AS A STARTING POINT FOR CREATING STREAM ACTIVITIES IN EARLY PRIMARY EDUCATION

Abstract: STREAM is a modern educational approach that integrates science, technology, reading and writing, engineering, art, and mathematics to provide students with a new learning experience tailored to the demands of the 21st century. Although art is incorporated into the STEAM and STREAM educational frameworks, as more advanced variants of the widely adopted STEM approach, it has been commonly marginalized and treated as a mere decoration or illustration. The primary aim of this paper is to demonstrate that a work of art can serve as a starting point for designing STREAM educational activities. To this end, the paper presents potential STREAM activities intended for Serbian second-graders with the medieval calendar illustrations from the *Très Riches Heures du duc de Berry* of the Limbourg Brothers used as the foundation. The proposed activities integrate the content from the units included in the national curricula for the following school subjects: Arts (theory of form, interpretation of works of art, visual art creation), Natural Sciences (the nature calendar), Mathematics (thematically adapted tasks concerning geometric shapes and arithmetic practice), and Language (description based on observation). The proposed activities serve to inspire teachers to implement the STREAM approach in early primary education to enhance the educational process.

Keywords: STREAM, early primary education, Limbourg Brothers' Calendar, Arts, The World around Us, Mathematics, Serbian Language.

INTRODUCTION

The national curricula for teaching and learning in the Republic of Serbia (e.g., Rulebook II, 2018/2024) aim to improve and modernize teaching processes.

The content is no longer regarded as a goal; rather, it is a tool used to achieve learning outcomes, develop students' functional knowledge and skills, and form attitudes. The main purpose of these changes is to foster general, subject-specific, and key competencies prescribed for each educational cycle. A particular emphasis is placed on the integration of the content. The curricula for all school subjects are designed so that teachers can identify the themes and units suitable for interdisciplinary integration more easily. An integrative approach, characterized by both horizontal and vertical curriculum alignment, redefines the roles of teachers and students: through collaborative inquiry, observing problems from multiple perspectives, and drawing on knowledge from different scientific and artistic disciplines, students are expected to develop comprehensive and functional knowledge.

One of the integrative learning models tailored to the demands of the 21st century is the STREAM (Science, Technology, Reading, Engineering, Art and Mathematics) framework. STREAM integrates knowledge and skills from the aforementioned disciplines to provide students with meaningful interdisciplinary learning experiences. STREAM education has been gaining momentum in Serbia. For instance, the project *LET'S STREAM* was implemented at the Faculty of Education in Jagodina, with the support and funding of the U.S. Embassy during 2023 and 2024. It was designed to improve the quality of education in Serbia by tackling the issue of integrating STREAM into the curricula for early primary education. The Faculty of Education in Jagodina also hosted the international conferences *Professional Competences for Teaching in the 21st Century* (2019) and *STEM/STEAM/STREAM – An Approach in the Theory and Practice of Modern Education and Education* (2024). The *DoSE* project (Center for the Promotion of Science of the Republic of Serbia 2020–2023) strived to accumulate the examples of good practices in STEAM education across Europe and to provide resources and tools to support teachers and other education professionals in developing STEAM strategies. The *Science on Stage Serbia*, led by the Institute for Modern Education and Contemporary Primary and Secondary School, was designed with the purpose of promoting STEM education in Serbia through professional trainings, workshops, and the continuous dissemination of innovative teaching practices.

Although art (A) has been incorporated into the STEAM and STREAM frameworks, as the extensions of the widely adopted STEM model (science, technology, engineering, and mathematics), it often has a marginalized role and is reduced to decoration and illustration. This paper aims to demonstrate that Art may be more significant than a merely auxiliary component. Namely, works of art can be the starting point for creating STREAM educational activities. This “reverse” model in which art does not come at the end, but rather represents the foundation that other components revolve around, is not commonly seen in practice. Hence, a demonstration of possible activities stemming from a work of art can be a useful contribution to the growing stock of papers and journal articles on STEAM education.

The medieval calendar illuminations by Brothers of Limbourg found in *Très Riches Heures du duc de Berry* are selected as a starting point. The proposed activities integrate the units included in the curricula for the second grade of primary school in the following school subjects: Arts (theory of form, interpretation of works of art, visual art creation), The World around Us (e.g., the nature calendar – monitoring natural cycles by describing and recording changes in nature and the changes in the timing of life-cycle-events (phenophases) of plants and animals), Mathematics (thematically adapted tasks for practising geometric shapes and arithmetic), and Serbian Language (description based on observation).

INTEGRATIVE TEACHING

Integrative teaching is based on interdisciplinary connections and thematic curriculum planning (Cekić-Jovanović 2021). There are diverse benefits of this innovative teaching model, including increased student motivation, improved understanding of the content, stronger links between different scientific and artistic fields, and more comprehensive and meaningful learning (Cekić-Jovanović 2021). One of the principal advantages of this approach is that it allows students more autonomy and independence to explore the world around them, while acquiring knowledge in an authentic way, i.e., through inquiry and direct experience (Čudina-Obradović, Brajković 2009: 17). As Buljbašić-Kuzmanović (2007: 148) highlights,

The integrative approach to learning emphasizes intellectual, social, emotional and aesthetic development, supports the holistic development of students, and does not focus on isolated, mainly cognitive outcomes. At the center of integrative learning is an individualized, learner-oriented program, instead of a subject-oriented and teacher-led program (Buljbašić-Kuzmanović 2007: 148).

Traditional subject-based instruction often fails to encourage students to make connections between knowledge acquired across different disciplines, and integrative approaches seek to overcome these limitations (Vilotijević, Vilotijević 2016: 104).

Teachers have a pivotal role in this process as their role is redefined (Lazarević 1993: 68): they must break down the barriers between different subjects and initiate the integration of the content from different disciplines in order to develop an interdisciplinary approach to a problem and allow students to acquire comprehensive knowledge. As Lazarević (1993) observed more than three decades ago, teachers' professional role must shift from that of a knowledge transmitter and, in addition to their traditional role of instructors, teachers are now expected to be,

strategists and guides of the learning process, programmers, organizers, diagnosticians, motivators, partners in pedagogical and social interactions, educators, evaluators, therapists, researchers, creators (Buljbašić-Kuzmanović 2007: 148).

Equally important is the learning environment itself, which should encourage exploration, creativity, collaboration, and problem solving.

The emergence of the so-called *digital natives* (Prensky, 2001) has further reinforced the need for innovative teaching approaches, as students have been growing up in the digital era: they routinely use digital technologies in their everyday activities and readily adapt to new technological developments. Media literacy and a constant access to digital information have profoundly influenced educational processes. Namely, the digital technologies have changed the ways of accessing information; especially then it comes to AI-based tools that offer complex, user-tailored answers, interpretations, and recommendations, even for the most basic web searches. Although the information provided by such tools is unreliable, for *digital natives*, knowledge seems easily attainable, i.e., immediate and effortless, as long as they have their digital devices and an internet connection at their disposal. When they do not have an access to these tools, insecurity settles in.

At the same time, students' expectations of teachers do not decrease. Teachers are expected to respond to the demands of the ever-changing digital world by adapting their teaching practices, i.e., to present content to students accustomed to multimedia in an equally prompt, entertaining, and interactive way. Criticism that schools are monotonous, tiring, rigid, and strict often do not stem from the comparisons of school with real-life context, but rather from the comparisons of schools with the digital environment that now constitutes students' *second reality*. Integrative teaching seeks to address this challenge by creating interactive and stimulating learning environments in which knowledge from different disciplines is interconnected in ways that resemble the interconnected nature of digital information. Integrative activities can contribute to navigating information with or without the internet, selecting information, but also processing it, considering it critically, connecting it to the other content, and forming independent conclusions. In this process, students assume the role of investigators, i.e., researchers, who access information directly and frequently work collaboratively, so that, relying on conversation and critical thinking, they can gain knowledge that transcends traditional disciplinary boundaries.

Content integration shifts from intra-subject to inter-subject integration. Within most subjects taught within early primary education in Serbia, intra-subject integration is already embedded in the curricula. For instance, the subject called *The World around Us*, or *Nature and Society*, integrates the concepts from natural and social sciences, such as botany, zoology, ecology, geography, history, etc. Mathematics combines arithmetic and geometry, while Serbian Language, integrates reading, writing, speaking, with grammar and literary interpretation. The subject called Arts brings together artistic practice and scientific knowledge: it focuses on the development of fine motor skills and creative expression alongside

the acquisition of knowledge on the theory of form and art history, as well as the development of interpretative skills, i.e., the interpretation of visual messages contained in a work of art.

Building upon the existing interdisciplinary integration, current educational reforms emphasize the need for integrating related content from different school subjects by enlarging teaching units. Such an approach reduces the accumulation of fragmented knowledge that characterizes traditional instruction and promotes the development of functional knowledge, creativity and transferable competencies. Instead of being a passive observer and recipient of information, a learner becomes an active agent who acquires functional knowledge through investigation, experience, and reflection.

Teachers in the first cycle of education (early primary school) are particularly well positioned to implement integrative teaching as one teacher teaches most compulsory subjects. They can organize teaching more flexibly and adjust their schedules to design learning activities that integrate content from different disciplines. For this reason, the paper targets the teachers teaching in early primary education.

STREAM

STREAM is an instructional approach founded on the integration of traditionally separate school subjects. The framework emphasizes the interrelatedness of content, i.e., knowledge, and its application in authentic, real-life contexts. The growing emphasis on integrative approaches in contemporary education, including STREAM, stems from the recognition that learning is not an isolated process, but rather a dynamic system of interconnected experiences and knowledge that we construct during our lifetime and apply in our everyday life.

STREAM is particularly valuable at the level of early primary education, because students are introduced early on to the basic principles of scientific thinking and “mathematical reasoning.” As students engage in interdisciplinary learning over time, their knowledge becomes more structured, they develop problem-solving skills applicable to real-life problems, critically examine problems from multiple perspectives, and learn collaboratively (Womack Wine 2025). Moreover, despite history not being explicitly represented in the STREAM acronym, historical content can also be effectively incorporated through meaningful connections with other disciplines, thereby fostering students’ analytical and creative thinking (Lestari et al. 2023).

The effectiveness of STREAM education depends largely on teachers’ creativity and professional competence in designing stimulating learning environments. Innovative teaching practices encourage active student participation and contribute to the development of creative individuals capable of approaching problems holistically and generating innovative solutions (Sanders 2009; Mladenović et al. 2023). Nevertheless, despite the widely recognized educational benefits of integra-

tive teaching, many primary school teachers still rarely implement such approaches, primarily because they do not perceive themselves as sufficiently prepared for interdisciplinary teaching through their initial university education (Starijaš et al. 2025). Hence, this paper aims to support teachers by proposing activities that can be implemented in early primary education.

Within both STEAM and STREAM education, Arts is most frequently treated as an auxiliary component that should contribute to the development of the overall aesthetic (Liu et al. 2021) or provide students with the opportunity to express their creativity (most often by illustrating some content). However, the subject called Arts and its content have not been utilized to their full potential. Art education provides students with the opportunity to “think in pictures” (Eisner 2002), i.e., to think symbolically, and it allows children to perceive the world through color, shape, symbol, and composition, all of which naturally connect to the concepts taught in other subject areas (Selaković 2023). Arts is a subject in which students develop motor skills and master specific visual tasks, but it also develops a model of thinking that enables flexibility, intuition, and interdisciplinary understanding (Eisner 2002). Hence, in this paper we advocate for using works of art as a starting point for designing STREAM educational activities.

THE BOOK OF HOURS OF THE DUKE OF BERRY

As mentioned, this paper proposes Arts-based STREAM activities integrating the content from three other subjects: The World around Us, Mathematics, and Serbian Language. The activities presented here are based on the calendar illustrations from *The Book of Hours of the Duke of Barry*, originally *Les Très Riches Heures du duc de Berry*, one of the most beautiful medieval illuminated manuscripts, created by the Limbourg Brothers (Paul, Herman, and Jean Malouel) between 1412 and 1416.

This masterpiece is frequently used as a visual and instructional resource in Arts classes in primary schools due to its depiction of the seasons and the visual language, which can be easily interpreted by young learners. An additional motivation for designing STREAM activities inspired by the world’s most famous illuminated manuscript is the fact that its restoration was completed in 2025. Since the late nineteenth century, the manuscript has been exhibited only twice, with the previous exhibition having taken place more than forty years earlier. During the exhibition—considered one of the most significant cultural events of 2025—the manuscript pages were turned every two weeks. Visitors to the Château de Chantilly also had access to projection rooms, multiple facsimile copies of the manuscript, digital editions, and numerous accompanying activities inspired by the manuscript itself and the life of the Duke of Berry. Appropriately marking important anniversaries and significant dates, as well as familiarizing students through

curricular and extracurricular activities with major international exhibitions and fairs in the fields of art, culture, and science, enables schools to participate in global cultural developments. Concurrently, they can modernize a teaching process by making both its methods and content more contemporary and relevant.

Les Très Riches Heures du duc de Berry is a personalized *Book of Hours* containing prayers, devotional texts, and passages from ecclesiastical poetry arranged according to the different months and canonical hours of the day. While earlier manuscripts typically represented the seasons in small medallions, in the *Très Riches Heures* these evolved into large illuminations (22.2 × 13.5 cm) depicting characteristic activities associated with each month. Although *Books of Hours* were religious in nature, they are also highly personalized devotional books, as artists frequently accommodated the wishes of their patrons. This is exemplified in the *Très Riches Heures*, commissioned by the Duke of Berry, younger brother of King Charles V of France, who requested that alongside scenes of nature, seasonal labor, and religious festivals, the manuscript should also include depictions of his numerous estates and magnificent castles (Arsenijević 2024: 111). Written in Latin, the manuscript contains as many as 66 full-page and 65 smaller illuminations of exceptional artistic value, representing the most advanced stage of the International Gothic style.

This style, which spread throughout Europe during the Late Gothic period after 1400, combined Northern European and Italian artistic traditions. Its defining characteristics include a soft painterly quality, a new sense of spatial depth and volume, and the so-called *drolleries*, i.e., the decorative marginal ornaments that introduced a sense of playfulness into the otherwise solemn Gothic realism. The manuscript remained partially unfinished because the artists died during the plague in 1416. It was eventually completed in 1485 by Jean Colombe. Although Colombe's illuminations are noticeably distinguished by a more subdued color palette and less masterfully constructed pictorial space, they did not diminish the overall beauty and artistic value of this remarkable manuscript.

PROPOSED ARTS-BASED STREAM ACTIVITIES

As mentioned, the calendar illuminations of the Limbourg Brothers are frequently used as visual and instructional resources in Arts classes because they vividly depict seasonal changes in nature, agricultural activities, and various customs, including some that are still observed today, such as the celebration of the New Year, illustrated in the illumination for January (QR Code 1) Particularly noteworthy is the February illumination, which is considered the first winter landscape in the history of Western art. This illumination also demonstrates the contrast between interior and exterior space, a concept addressed in Arts for second-graders. A characteristic feature of Gothic painting is the removal of the front wall of

buildings to reveal the interior, enabling students to observe the contrast between the snow-covered outdoor landscape and the warm interior of a peasant's cottage, where villagers are shown warming their feet by the fire with their garments lifted.

QR code 1. Brothers from Limbourg – Calendar



<https://pefja.kg.ac.rs/preuzimanje/qr/Braca-iz-Limburga-Kalendar.pdf>

The October and March illuminations are also interesting because they contain one of the earliest representations of cast shadows in Western art after Classical Antiquity. This feature provides an excellent opportunity to support second-grade lessons on the topics of *Shape* and *Space*. Picturesque scenes portraying both the life at the court of the Duke of Berry and the everyday life of peasants in medieval France continue throughout the remaining monthly illuminations.

Second-graders are generally able to identify the season represented by recognizing the agricultural tasks performed by the figures or by interpreting the colors used to depict the natural environment. Due to the knowledge acquired in other subjects, especially *The World around Us*, pupils are expected to understand what they are seeing. By comparing the color palettes of the March, May, July, and October illuminations, students can follow the visual narrative of nature's transformation, from its awakening in spring to its gradual decline in early autumn. Even when younger primary school students fail to understand all segments and aspects of these illuminations, they can read about in texts adapted to their age as shown in the material. Namely, the age-appropriate brief descriptions and stories can accompany illustrations (QR Code 1).

The STREAM activities based on the calendar illuminations of the Limbourg Brothers can integrate the following curriculum units (Table 1) from the Grade 2 Curriculum (Rulebook II, 2018/2023).

Table 1. Units suitable for integration

Subject	Themes	Units
Arts	Shapes	Contrasts (Introductory Lesson)
	Space	Spaces around us (Introductory Lesson)
The World around Us	Movement and orientation in time	Holidays and Seasons (Lesson Review)
	Diversity of nature	Seasonal changes (Introductory Lesson and Lesson Review)
Mathematics	Numbers	Addition and subtraction of two-digit numbers (Lesson Review)
Serbian Language	Linguistic culture	Description plan based on direct observation

The proposed teaching units can be integrated within the framework of a *thematic day*. A sequence of four or five lessons provides sufficient time for students to achieve the learning outcomes prescribed for all four subjects while remaining within a single thematic context. An additional advantage of this approach is its flexibility, as the thematic day can be adapted to the particular month or season in which it is implemented. Namely, the manuscript contains illustrations for all twelve calendar months. Depending on a selected month, teachers, can integrate the content taught in *The World around Us*. For instance, if a thematic day takes place in January, the illustration depicting the New Year celebration can be used to address the unit *Holidays and Seasons of the Year*. If a thematic day takes place in March, the illustration depicting sowing (planting) can be used to teach the unit *Seasonal changes*. Such flexibility is possible because teachers are permitted to adapt their annual teaching plans to the school calendar and the needs of the teaching process, particularly in situations when integrating content from different school subjects is suitable. One of the major advantages of STREAM activities based on the selected calendar illuminations is that thematic days inspired by these works could be implemented every month, or at least once during each season throughout the school year.

Beginning with the selected illumination, a teacher can introduce a particular season or holiday, thereby creating a meaningful introduction to the Serbian Language lesson in which students are expected to develop an outline for a descriptive text based on direct observation. The same illustration could also inspire context-based mathematical problems tailored to the current Mathematics unit. In Arts, it could function as a visual and instructional resource for explaining concepts such as contrast or space while simultaneously serving as inspiration for students' own artistic creations.

It is also important to emphasize that the STREAM activities proposed in this paper could become part of a much broader project. For instance, students can be required to maintaining a nature calendar with age-appropriate observation charts. Such a project could be implemented progressively throughout the entire school year, enabling students to observe, document, and interpret seasonal transformations while making meaningful connections across different subject areas.

ARTS

The Arts Curriculum for second-graders comprises the theme *Shapes and Space*, which includes the units *Contrast* and *Spaces around Us*. In these units, calendar illuminations can serve as visual didactic tools as there are obvious contrasts in colors and sizes. This can be, inter alia, linked to the contrasts in nature (e.g., seasons) and contrasts in size (e.g., large versus small). It can be also connected to the contrasts in dynamics and rhythm, which is taught within Music Education.

Calendar illustrations can also be utilized with the unit *Space*, as spatial plans are well defined. Namely, the shapes in the foreground are larger than those in the background. This is age-appropriate as this is how second-grade students perceive space. The ability to recognize spatial plans and represent the depth (via closer – larger and further – smaller) is listed as one of the learning outcomes for second-graders in Arts.

The lesson unit *Spaces around Us* can be linked to the perception of spatial depth as well as to contrasts in color and size, primarily by drawing pupils' attention to the contrast in tones used to illustrate the cold and warm months, but also to the contrast between interior and exterior space in the illustration of February. A similar approach to depicting interior and exterior space within a single composition may serve as a suitable topic for pupils' artistic work, as this manner of representing space is common among children at this developmental stage. Another possible artistic task is for pupils to create illustrations of the seasons or of individual months, portraying contemporary ways of life. This would establish a contrast between the past and the present, which could be highlighted during the final discussion of the completed artworks by comparing the scenes painted by the Limbourg Brothers with those created by the second-grade pupils.

WORLD AROUND US

The calendar illuminations created by the Limbourg Brothers are a vivid and valuable visual-didactic resource for teaching *Holidays and the Seasons* and *Seasonal Changes*. By observing these illuminations, pupils can identify human activities throughout all twelve calendar months, as well as changes in the natural environment over the course of the year. The illustrations enable them to recognize the succession of different developmental stages (i.e., phenophases) in the life cycles of plants and animals.

Within the thematic unit *Movement and Orientation in Space and Time*, pupils are to learn about basic concepts of time (day, week, month, and year) and with instruments used for measuring time, such as the *clock* and the *calendar*. Within the thematic unit *Diversity of Nature*, second-graders learn to observe and record seasonal changes in nature and typical human activities. This includes monitoring weather conditions (e.g., sunny or rainy weather), temperature, and changes in plants, as well as observing, describing, and documenting these changes using a selected tree as an example (e.g., the beginning of flowering, fruit ripening, leaf fall, and similar phenomena). Pupils also study the appearance and seasonal changes on farms and agricultural holdings, domesticated animals, ecological factors (sunlight, air, water, and soil) and their interdependence, as well as the role of humans in nature. These natural and seasonal changes are vividly represented in the calendar

illuminations created by the Limbourg Brothers, making them an excellent visual resource for supporting the achievement of these learning outcomes.

Nature calendars, or phenological calendars, which pupils encounter in the *World around Us*, have evolved throughout history as tools for observing and recording changes in nature. Traditionally, they were primarily used to support agricultural planning by identifying the most favorable periods for farming activities, such as sowing and pest control (Kalita, Sharma 2023). Today, however, phenological calendars have a much broader range of applications, extending beyond agriculture to fields such as tourism and education. Moreover, with the integration of modern digital technologies and citizen science initiatives, even young pupils can actively participate in observing, recording, and analyzing natural phenomena, thereby assuming the role of “young researchers” (QR code 2).

QR code 2. Customized tables for monitoring changes in nature¹



<https://pefja.kg.ac.rs/preuzimanje/qv/Svet-okv-nas-tabele.pdf>

By monitoring changes in nature throughout the year, that is, by systematically observing the weather conditions and the behavior of living beings that they lead to, pupils are introduced to the basic principles of the scientific method – they learn and practice the skills of observation, description, recording and forming assumptions (hypotheses), and they analyze, discuss and collaborate with each other in order to predict the possible consequences of these relationships and changes (Wals et al. 2014; Kluch et al. 2021). In addition, such observations usually move teaching from classrooms to natural environments. In this way, students learn to think systematically, notice and understand interconnections in space and time, appreciate the complexity of relationships in nature (and society), and develop a concern for the world around them and for nature in general.

MATHEMATICS

A consolidation lesson on *Addition and Subtraction of Two-Digit Numbers* may include textual problems thematically linked to the seasons and, more specifically, to the calendar illuminations. Thematically contextualized mathematical

¹ The instructional materials, including adapted nature observation charts, thematic mathematics worksheets, and descriptive writing plans based on direct observation, were developed by Vesna Svrzić, a Master's student in Primary Education, as part of the course *Art Education and Curriculum Integration*, under the supervision of Prof. Dr. Mia Arsenijević, the course instructor.

problems are particularly appropriate in early primary education, as pupils are encouraged to think critically and establish connections between mathematics and real life, as well as between mathematics and the distant past depicted in the Limbourg Brothers' illuminations (QR code 3).

QR code 3. Thematic mathematical problems inspired by the Calendar



<https://pefja.kg.ac.rs/preuzimanje/qv/Matematika-tematski-zadaci.pdf>

A textual mathematical problem may include the character of Duke. For instance, a problem may state that the Duke, during a winter hunt, saw 62 stags and 28 does, and require pupils to calculate the total number of animals. Such problems may spark pupils' curiosity about the historical figure of the Duke of Berry, prompting them to explore how medieval people lived: how they hunted, dined, celebrated holidays, and spent their leisure time.

Thus, beyond providing an engaging context for learning mathematics and connecting mathematical concepts with authentic historical settings, thematic word problems foster pupils' curiosity and encourage further inquiry. They serve as a gateway to history, geography, and other academic disciplines, helping children develop a more comprehensive understanding of topics that capture their interest, and promoting interdisciplinary learning.

SERBIAN LANGUAGE

Within the thematic area *Language Culture*, second-grade pupils learn how to develop an outline for descriptive writing, including descriptions based on direct observation. In the context of the proposed lesson, pupils can prepare such an outline by observing the calendar illuminations created by the Limbourg Brothers.

The discussion of the calendar illuminations within the proposed STREAM activities would be enriched by the knowledge pupils had previously acquired across different subjects through inquiry-based activities conducted together with their teacher. Observing these works of art enables pupils to identify contrasts in color, size, and spatial representation, while the *World around Us* lessons help them recognize the seasons and the changes occurring in nature as depicted in the medieval illustrations. This interdisciplinary approach provides an effective introduction to the Serbian language lesson aimed at developing pupils' language culture and descriptive expression (QR code 4).

QR code 4. Observation-based description plan



<https://pefja.kg.ac.rs/preuzimanje/qv/Srpski-jezik-plan-opisivanja-na-osnovu-posmatranja.pdf>

Having already explored the topic through a range of STREAM activities, pupils would be well prepared to confidently construct a descriptive writing plan. By once again examining the reproductions, they should be able to clearly articulate—either orally or in writing—what they observe and what they have learned about scenes of medieval rural life in France, while also drawing comparisons with their own everyday experiences. As expected, descriptions of the natural environment, which occupies a central place in the calendar illuminations, would likewise become the focal point of pupils’ oral and written descriptions inspired by the selected reproductions.

CONCLUDING REMARKS

The STREAM activities proposed in this paper demonstrate the potential for integrating curriculum content from four subjects: *Arts*, *World around Us*, *Mathematics*, and *Serbian Language*, as prescribed by the current curriculum for the second grade of primary education.

This paper demonstrates that a work of art can serve not merely as a complementary element but as the conceptual starting point for designing STREAM learning activities in primary education. Unlike the more common practice in which the arts serve primarily as a concluding creative activity or an aesthetic supplement to STEM-based learning, the present approach positions the artwork at the centre of the educational process. In doing so, it fully exploits the integrative potential of the visual arts to connect concepts across scientific, linguistic, and mathematical domains while simultaneously fostering visual literacy, critical thinking, creativity, observation skills, and interdisciplinary understanding.

The proposed model illustrates how a single artwork can provide a coherent thematic framework for learning experience that extends from individual lessons to thematic days or larger interdisciplinary projects. The project combines artistic knowledge (formal analysis, interpretation of works of art, and artistic creation), natural sciences (the nature calendar and seasonal changes), mathematics (geometry and arithmetic through context-based problem solving), and language education (observation-based descriptive expression).

Rather than presenting a complete instructional model, the paper offers a conceptual framework by mapping curriculum content that can be meaningfully

connected to the selected work of art and explaining how it can support the teaching of specific curriculum units in the second grade. Given the thematic focus of the artwork and the fact that the concept of the seasons is addressed in different ways throughout the first cycle of primary education, from the first to the fourth grade, this medieval manuscript may also serve as an effective starting point for designing similar STREAM activities across other grade levels. Namely, the calendar's rich visual and interdisciplinary potential provides opportunities for developing integrated learning experiences that connect artistic heritage with concepts from the natural sciences, mathematics, language, and other curriculum areas.

Although this paper presents a conceptual model rather than an empirically evaluated intervention, it offers a methodological framework that may support teachers and pre-service teachers in designing similar interdisciplinary learning experiences. Future research should examine the effectiveness of this art-centered STREAM approach through classroom implementation and empirical evaluation of its impact on students' learning outcomes, creativity, engagement, and interdisciplinary competencies. Such studies would contribute to a deeper understanding of the role that works of art can play in enriching STREAM education and strengthening integrative teaching practices in primary schools.

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УМЕТНИЧКО ДЕЛО КАО ПОЛАЗИШТЕ ЗА КРЕИРАЊЕ СТРЕАМ АКТИВНОСТИ У РАЗРЕДНОЈ НАСТАВИ

Резиме: СТРЕАМ (енг. STREAM) представља савремени приступ образовању који интегрише науку (С), технологију (Т), писање и читање (Р), инжењерство (Е), уметност (А) и математику (М) и тиме пружа ученицима ново искуство учења које је прилагођено потребама 21. века. Иако укључена у СТЕАМ и СТРЕАМ образовне концепте, напредније варијанте сада већ широко распрострањеног СТЕМ-а, уметност у оквиру ових модела неретко је на маргини. Циљ овог рада јесте да укаже да уметничко дело може бити полазиште за креирање СТРЕАМ образовних активности и да уметност може имати знатно већу улогу од естетске. У овом раду представљене су могуће активности намењене разредној настави, а за чије креирање је као полазиште послужило дело Браће из Лимбурга, односно средњовековне илуминације календара из књиге *Les Très Riches Heures du duc de Berry*. Рад предлаже интеграцију знања из области уметности (теорија форме, интерпретација уметничког дела, ликовно стваралаштво), природних наука (календар природе – праћење природних циклуса описивањем и бележењем промена у природи и промена појавних облика (фенофаза) током животног циклуса биљака и животиња, као и њихова међузависност, екологија), математике (облици и вежбање рачунања кроз тематски прилагођене задатке) и језика (описивање на основу посматрања). Овај „обрнути” модел, у коме уметност не долази на крају, већ представља полазиште за целокупан СТРЕАМ пројекат, није уобичајен у пракси, због чега верујемо да представљање једног таквог пројекта може допринети развоју сличних активности и унапређењу наставне праксе у раном основношколском образовању.

Кључне речи: СТРЕАМ, разредна настава, Календар браће из Лимбурга, Ликовна култура, Свет око нас, Математика, Српски језик.