A sustainability handbook and toolkit for schools, teachers and policymakers

The SCRAPPIES project

Matias Mäki-Kuutti || Orsolya Tuba || Kamil Maciaszek
Kristof Fenyvesi || Anna Lisiecka || Sara Tychowska
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Enhancing Creativity and Sustainable Attitudes
of Children Through Play and Recycled Materials
(The SCRAPPIES project)
A sustainability handbook and toolkit for teachers

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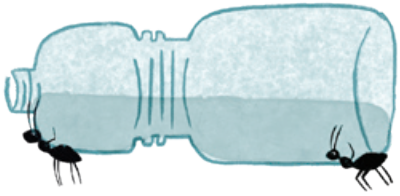


CONTENTS

Matias Mäki-Kuutti,
Researcher at the University of Jyväskylä, author and editor of this book

Foreword

What can we as educators do in response to this rapidly changing world? As our planet becomes increasingly globalised through technological advancements, new communication methods, and evolving travel experiences, we are also testing the limits of nature's carrying capacity. With a growing population and expanding capabilities, the pressures on our environment are intensifying. The urgency for Education for Sustainable Development (ESD) is more critical than ever as we face challenges related to well-being, democracy, digital power, and the stability of our economic foundations (Sitra, 2023). It is imperative that we equip future generations with the knowledge and skills to navigate and address these complex issues.

Our values have a lot to do with what we experience when we are young: what we learn at school, see on television and the internet, and what other people around us think and do. As we face challenges as individuals, as societies, and humanity as a whole, it could be said that the most important building blocks to endure and flourish are built from the ground up. This is where teaching and

learning have important roles. We as educators have the power to perhaps not entirely change the values of our future youth, but to make a difference. To build sustainable values, to inspire creativity, to teach our children and the children of others to care about each other, to care about the future, and to take action, whether small or big.Education should be emancipatory, so that we can all have the tools to create positive change, for a better tomorrow.

Of course, the world is full of problems and challenges to tackle, and to even attempt to list all of the most pressing ones is difficult to fathom. But going back to thinking about the changing world, there is one thing that inevitably concerns all of us from time to time, and that is that we as human beings change the world, its nature, and its climate. And it is becoming increasingly important to take action to protect our planet, to change our attitudes about climate change, and to develop ways to lessen our impact, or even reverse it, on our planet. This change concerns all of us in different ways depending on where we live, but it is for certain that it does concern everyone no matter their situation and location in the world. This little handbook is written to assist educators in facilitating this change for the better.

About the SCRAPPIES project

Enhancing Creativity and Sustainable Attitudes of Children through Play and Recycled Materials, aka. The SCRAPPIES project is an Erasmus+ funded project where we aim to increase awareness of ESD and develop new tools to make sustainability a fun and engaging topic for children to play with. Our mission is to demonstrate and instruct on the seamless transformation of school activities, rendering them more sustainable, multidimensional, and multidisciplinary, all with minimal effort and cost. We wish to empower schools to foster creativity and divergent thinking using unconventional materials like scrap items (e.g. bottles, foil, caps, cardboard packaging). This approach helps students visualise lessons, making abstract concepts tangible and memorable for improved learning and retention. We firmly believe that this approach can revolutionise school curricula, placing sustainability at its core. Our aim is also to rekindle teachers' enthusiasm for their profession, illustrating how lessons can become more multidimensional and increasing overall happiness and job satisfaction. We aspire to fortify teacher-student relationships while fostering sustainable practices, enhancing creativity, divergent thinking,

cooperation, and resilience among students. And finally, our ultimate goal is to create a more systematic, exciting, and lively teaching and learning process, benefiting both students and educators alike. The materials that we have produced as part of the SCRAPPIES project have been designed so that the teachers can work on such activities with children already at basic education levels, that the children can learn by example and absorb these good values from the activities and the teaching philosophy.

Throughout the SCRAPPIES project, we gathered input from all three participating countries: Finland, Poland, and Hungary. In addition to reviewing the national curricula, we also interviewed various educators, municipal policymakers, hosted international webinars and training camps on sustainability, and conducted focus group sessions and piloting with teachers and students. As well as changing attitudes and building curiosity among child and adult learners alike, we share our experiences as educators and researchers, as well as information from educationalists and curricula in Finland, Poland, and Hungary.

Our project includes the development of a sustainability handbook for educators, a toolkit of plug-and-play educational materials in the topic of sustainability called “snaps”, and open access webinars with international guest speakers to tackle the subject of sustainability. The project contributors are University of Jyväskylä, Finland, Gratosfera Foundation, Poland, and Rogers Foundation, Hungary.

You can find more information about the project and its partners at the end of the book, or by visiting www.scrappiesproject.eu/[1]. You can find the educational toolkit at the end of this book as an appendix, and our webinar series can be found on the Innovative Learning Environments Finland YouTube channel[2]. We wish you a happy time with the materials!

1 2

Who is this book for?

Welcome, reader! This is a handbook for primary school teachers and school leaders to implement Education for Sustainable Development (ESD). The purpose of the book is to inspire, to help teachers and learners find new ways to approach the subject of creativity and alternative use of everyday items and scrap materials, to build knowledge and better attitudes toward a sustainable future. The book contains materials and insights from three countries, Finland, Poland, and Hungary, from educational experts, researchers, curricula, and more. To call this book a "handbook", means that its focus is on information that can be useful for the reader to think of and incorporate into their teaching and learning scenarios, and to develop school and learning infrastructures in a grander scale to facilitate ESD.

Within the book, we draw information from the educational systems in the three European countries Finland, Poland, and Hungary, and draw attention to some educational priorities and how actions for sustainable development are supported, as well as room for improvement in each country. We identify challenges and gaps

within the educational systems, offer recommendations for stakeholders, policymakers, teachers, headteachers, principals, or anyone working to make the educational process in primary school education multidimensional, interdisciplinary and oriented towards building 21st century skills in children, all while building sustainable attitudes.

We have also created a SCRAPPIES toolkit for educators that you can find at the end of this book as an appendix, along with other materials. The toolkit includes ready-made short lesson plans to ignite learners' interest in the form of child-led experiments using recycled materials. The toolkit includes tools in the form of inspiring, open-ended scenarios which are prepared for classes 1-6 of primary schools and the majority of these are in line with the core curricula of schools. The main components of the toolkit, the "snaps", will be introduced later in this book, and once again, you can find the snaps themselves in the toolkit included at the end of this book.

All the content within this handbook, the toolkit, and our other works, are made to be used to support teaching, to be experimented with, or to be read for ideas, useful practices, or inspiration. Feel free to browse through the different sections of this book, read what is important to you. The book is not meant to be used as a comprehensive guide on Education for Sustainable Development, but rather as a guide to help us all to elevate our awareness of environmental issues and for teachers to be more sustainability-centred in their teaching.

Why a handbook?

Research has shown that children who receive environmental education at an early age are more likely to develop a positive attitude towards the environment, which can lead to pro-environmental behaviours in adulthood (Chawla, 2007). Teachers are expected to incorporate environmental and sustainability issues into different subject areas, such as science, social studies, and language arts. Every age has psychological characteristics that are linked to the environmental sensitivity and behaviour towards environmental relationships, and therefore different pedagogical methods and tools are required for each age group. It is in early childhood that our attitudes and attitudes towards our environment are established (Evans et al., 2007). Teaching sustainability and environmental approaches in early childhood education can also provide children with opportunities to develop critical thinking and problem-solving skills. Through hands-on learning experiences, children can develop scientific inquiry skills and learn to think critically about environmental issues (Hedefalk et al., 2014).

So what do teachers want and need to teach sustainability? Well, why don't we ask them? Throughout the project, we worked closely with local teachers in Finland, Poland and Hungary through a process called local stakeholder group (LSG) meetings to give us their insights on what an ESD handbook and learning materials should include and look like, and what kinds of materials and tools they would need in their teaching. The LSG meetings provided a platform for the sharing of thoughts and suggestions, and it helped us adjust and tailor our materials to make them applicable for teachers. The input from these kinds of meetings helped shape the project and align our project developments with the needs of local teachers and lower-secondary schools in our communities. The importance of co-creation and incubation of ideas with local experts and teachers with these kinds of projects is crucial for success. To develop the materials for real teaching scenarios, projects working on development for sustainable education need to involve local teachers, policymakers, and other educators in the design process.

When working with local stakeholders, such as teachers or policy makers, important issues and ideas can be brought forward from the very beginning until the very end. Similarly, if you are a teacher working with learning material, you can benefit from sharing your thoughts with other teachers from your area: perhaps someone near you has already solved the problem you are trying to solve, or created learning material for a lesson you would like to run. Utilising this synergy would not only help to reduce time and effort, and increase the feeling of a supportive network at your workplace.

In our local stakeholder groups, our educational specialists raised important questions to answer, such as "Why would we use this?", "Does this answer the goals of our curriculum?", and "How do we scale this for bigger groups of students?". They also brought

themselves answers to many questions. We used the feedback of our LSG experts to enhance our work, and to ensure that the materials we produce match the requirements of the national curricula, and to answer some of the problems that teachers find with their everyday teaching.

Minna Suikkari and Mirka Havinga, local school teachers in Finland, discussing ideas for educational materials. Photo: Orsolya Tuba

„I think for teachers it would be otherwise they might not want to do something that takes something which isn't related. It could be just the competences (from the curriculum), but could it be possible to write the T's (targets) from the curriculum that they cover if possible. T4 for example, from the subjects that they need to reach. I am worried that teachers might think it is extra and not have time for it. I think adaptability is important, you don't have to do them exactly as they are written."

| Gwyneth Koljonen, Elementary school teacher

„It would be a good idea to have the categories and themes because of the curriculum. Sometimes teachers spend a lot of time searching and finding specific tasks, materials and exercises for specific topics, so I think there is no harm in having themes and categories for the snaps. One can still utilise the snaps in different ways and for different purposes. I love the idea of adaptability of the snaps, because it leaves room for exploring the interests and ideas that arise from students."

| Susanna Kuusinen, Coordinator of international education growth and learning services of the City of Jyväskylä

„It is also my opinion that there is value in the content (the snaps) beyond the curriculum."

| Hiroki Tokudome, Education specialist

Toshinori Sasakura, Minna Suikkari and Mirka Havinga, along with online participants, checking out the „snaps" created by our JYU team. Photo: Orsolya Tuba

Here is a bullet point list of important points for enabling education for sustainable development:

- Teacher's tools that would be directly useful for them in helping students reach different study goals.
- Focus on practicality and brevity, with concise descriptions of materials and activities.
- Integration of activities with the national curriculum.
- A visually appealing handbook with visual cues like photos and pictures
- Inspiration for teaching scenarios, allowing adaptation to specific classroom dynamics with consideration for students with specific learning needs such as ADHD or dyslexia.
- Flexibility for lessons to vary between tachers, schools, and classes
- Emphasis on children's creativity, self-reliance, critical thinking, and open interpretation rather than strict scenarios.
- Include target age groups and varying levels of difficulty to support classroom differentiation
- Communication tools with parents, showcasing goals and objectives of school activities.

Summarising the results from our LSG meetings, teachers want a handbook to include a variety of multi-purpose learning scenarios and tips on how to implement sustainability into each subject. Inspirational content is important, allowing for interpretation and creativity in using materials. Good learning content should be vibrant, visually appealing, age-appropriate, and offer interdisci plinary content that stimulates thought and creativity. The materials should encourage children's problem-solving skills and cooperation, be based on national curricula, and be easily adaptable for different levels of students and for different types of learners.

Any given content should be easy to grasp and translate into action or activity. Photos and illustrations should dominate over the text. Teachers would like materials to be simple tools with helpful leads. Simplicity is key, so the content is easy to adapt and modify according to both the teachers' needs and preferences, and children's ages and abilities. Ideally, innovative learning materials should inspire independent exploration and creativity in children. While showing an example model of a finished product can help when building projects, the material should also serve as inspiration for students to explore and create independently. Pre-prepared learning materials that inspire students and encourage creative exploration are highly valued. It is best if children are inspired by the subject, pictures and materials they are about to use. Additionally, teachers seek thought-provoking, interdisciplinary resources that serve as a foundation for their instructional activities.

While the creation of an individualised curriculum for teaching each subject is substantially beyond the possibilities of this handbook, the handbook along with the sibling product "the scrappies snaps toolkit" offer a variety of ideas and tools for teachers to implement in their teaching regardless of study subject. The snaps included in the toolkit bring out the children's creativity and inspire them to work on phenomenon-based learning scenarios centred on

ESD through play with scrap materials. Each snap is arranged in a one- to two-page cheat sheet and can be adapted to the students' needs. While the information in this handbook is meant for teachers of all levels, the tasks included in the snaps toolkit are meant to be used in primary education. The contents and transversal competences developed within these learning scenarios are designed with national curricula in mind.

The Dimensions of Education for Sustainable Development (ESD)

What are the main elements of sustainability?

What are the needs of education for ESD and how do we meet them?

How do we create the initiatives to improve sustainability in our communities and societies?

Education for Sustainable Development delves into the interconnected realms of ecological awareness, societal responsibility, and critical thinking. We wish to foster curiosity and motivation in students, and to weave a bridge between ESD and the cultivation of crucial social competences to nurture our world, and the nature that lives in it. Our values are interconnected with those around us, and they evolve through dialogue, through experimenting and experiencing, and by working together and sharing our thoughts and ideas. We embrace this cooperative nature of learning by doing

and experiencing together while learning soft skills and social competences, to establish a reflective connection that not only fuels our own curiosity, but also motivates students to comprehend the complex web of sustainability concepts.

To give some insights to begin this book about sustainability, we interviewed Heidi Layne, a university lecturer at the University of Jyväskylä, Finland, who specialises in sustainable development and global education.

Heidi Layne planting a tree at the APU campus in India.

When we are thinking about sustainability, there are different interpretations of what the curriculum emphasises. In terms of social, cultural, economic, and ecological sustainability, we place great emphasis on multilingualism and multiculturalism on cultural sustainability. Of course there is some social sustainability in it, but they are often referred to as something that has already been solved, but we still have a greatly equalising structure in schools, and the curriculum does not offer solutions for social justice questions. Niina Mykrä (2021) also in her PhD has talked about a gap between the different dimensions of sustainability, and how ecological one is mainly included in the UN's Agenda 2030 themes. Economic sustainability does not have much visibility.

So there are many sides to sustainability. Those who look at sustainability more from a social and cultural point of view, it is visible that we have some diversity and cultural heritage preservation steps in effect. Those are big questions when considering whose cultural heritage we are striving to protect, and how people can actually participate in these questions about sustainability. But then an example from teaching sustainability, to my experience, I have taught one course in teacher education, where students choose one value and begin to develop that value into an action. No matter how many examples I try to bring up when teaching that course, the students tend to choose recycling. At times, it feels that sustainability is narrowed down to recycling. The sustainability topics social, cultural, ecological, economic are included in the UN's 17 sustainable development goals. They are also overlapping and not separated. The SDG4, Education for all, is one of these goals too.

So what's the situation in schools at the moment?

Well in Finland at the moment, the National Core Curriculum for Basic Education has incorporated aspects of sustainability as one of the seven transversal key competences that run throughout all study subjects, which means that depending on the level of study, sustainability is taught in different ways through for example environmental studies, home economics, health education, language education, and so on. The reality of what happens in schools themselves depends very much on which angle you look at it. We are currently conducting a small scale survey about the teachers' beliefs on climate crisis, and asking teachers how the climate crisis is visible in their teaching and curriculum they teach. From a very small sample already, we see that some teachers mention that climate change topics are included into the curriculum they teach, and some teachers think it is not included, yet we are all in Finland. It also depends on what terms are used.

We would need to understand that there is also a possibility of us humans dying out. We are a part of an ecosystem, we might not have made visible our privileged position in the ecosystem, where we can decide how much we can, as an example, kill the wolf population. So the discussion about values in terms of all these sustainability dimensions would be an extremely important position of development, and that is the idea of ecosocial education and wisdom. But at the moment it is not clear how much this is applied.

I also teach antiracism in education, I am more well-versed in that social justice point of view. Unfortunately, polarisation is an issue in our schools and society. The hate speech has become also widely accepted by the current rather right wing government leaders. Some youth struggle, especially the minorities experiencing exclusion, the media portrays them under a negative light, and government leaders talk about a need to apply stronger punishments

for youth, instead of care and mental health services or simply to promote ways in which we could empower children and youth. Another important question is how we could create safer spaces in schools to discuss difficult topics, and how we could include the young as a part of our society, no matter what kinds of backgrounds they're from. When schools are not safe places especially for kids coming from varying backgrounds, it might lead to ganging up and group identity radicalisation.

Of course, there's also positive activism that youth engage in, like environmental activism. In Finland, we have for example environmental activist group Elokapina, who campaign for the preservation of all. On the macrolevel that kind of activism may seem useless, but it creates visibility locally, and raises public attention on the power hierarchies over these things.

Some challenges that teachers have mentioned about teaching and talking about climate crises is the boundary of how to raise the seriousness of it, and at the same time, not to cause anxiety to children and youth. Essentially, we uphold a certain kind of therapised ideology in education and in political discussions, where we need to protect the children from difficult topics, but we cannot save this world if we continue to protect the children from the realities. The key is how to talk about these things at the different age levels, and how this is taught at teacher education. We are not equally positioned in this world.

Some people suffer the consequences of the climate crisis more acutely than others, but none of us can afford to close our eyes on them. These discussions about values need to be raised more.

Another thing is also, that we at universities appreciate knowledge, of course, but besides knowledge, we need actions and methods. This is the reason why in teacher education, students do these kinds of projects, so that teachers can get more and more ideas and tools to bring these values to their education, and through education, the young will be able to emancipate themselves.

Any interesting ideas? or what challenges remain?

Too much is left to one's individual responsibility to implement the sustainability issues into teaching. There are incredible 'hero' teachers who do wonderful things. We also have a great variety of non-governmental organisations who do great peace, global and environmental education work, as an example.

I have thought about this a lot, that we have this phenomenon-based learning in Finland. We just came from Singapore where my children were in an international IB school, with a project-based curriculum. They did not have exams in primary school level, but more inquiry-based learning. The end of school year project was for example related to natural water resources, where they wrote a research paper, and the practical part was done at school where they had to implement a project to save water use. They presented their projects at a school fair where their parents and other people could come to see the work and evaluate their work based on the presentations.

This is the extent of project activity I haven't seen here in Finland. For example, in secondary education (grades 7 to 9), we have subject teachers who are, more or less, concentrated on their own subjects, and then it's left to the teachers' own initiative and interest to create the kinds of projects I mentioned. This might be the gap between the curriculum and the practice. With our current climate crisis research, we are aiming to interview teachers about what kinds of futures they would see as possible and ideal in terms of education, and what kinds of actions are needed to reach those goals. We are trying to find out more information about what is being done, and I think it would be crucial to have that information. We've had teachers take their children to demonstrations at times when there have been some related to sustainability, but we would need an even wider critical pedagogy based education approach,

which could directly affect environmental questions when students are encouraged to become active citizens. I feel that our educational system is too neutral, and it doesn't work because we should definitely train teachers and students to become more active in taking part in building more sustainable societies. Active agency is the core, regardless of which dimension of sustainability we are talking about ecojustice, eco civilisation or social justice. We need those people who are really willing to do things and change things through their actions.

Finally, referring to Paulo Freire and their oppressed pedagogy (Gibson, 1999), he mentioned three different ways to react to injustices. One is to maybe be blind to it, approve it and contribute to it. Second level is to recognize it and not to approve it, but also to be passive in own actions and reactions. One is to maybe be blind to it, approve it and contribute to it. Second level is to recognize it and not to approve it, but also to be passive in own actions and reactions. Third one is to recognize it, and proactively work towards change. We all fall to each category at different times and places, but to become aware of the agency one has in the change is crucial. And those with more power in the system, have the responsibility to work on these issues and to distribute the power equally. Education, therefore, needs to be able to overcome the challenges that stem from differences between socioeconomic backgrounds, taking into account the life experiences of everyone. Inclusion of sustainability is at the very core of education, and those people with more power, in schools and the teachers, are the ones showing example. It is also everyone's responsibility, because the others look to them as examples and observe their actions and use them as reference. And on top of everything, there are also the deeply rooted cultural impressions regarding for example social status and sustainability, where in some context recycling and buying second-hand items and clothing would signify lower income status, and would therefore

be avoided. Media, influencers, and politically powerful individuals have a massive opportunity to change these impressions and values toward the better. To become aware of our skewed values and where they lead us, we still need much more global talk about sustainability and recycling, and the meanings and implications they have for us all.

Discussion between Heidi Layne, sustainable development and global education university lecturer, and Matias Mäki-Kuutti, university researcher in the SCRAPPIES project and editor of this book.

The State of Education for Sustainable Development (ESD) in Finland, Poland, and Hungary

Education concepts and pedagogies aimed at addressing the complex challenges of climate change and environmental issues have increased in number as a result of global policies guided to foster skills and values associated with social, developmental, and environmental justice, which serve as the foundation for the sustainable development tradition (Laurie et al., 2016; Bianchi, 2020). Central concepts in sustainability education have been collected under the umbrella term Education for Sustainable Development (ESD) including Environmental Education (EE) and Climate Change Education (CCE) and Global Citizenship Education (GCE) (Skinner et al., 2013; Andreotti, 2006). ESD's evolution reflects the diverse interpretations of sustainable development (SD) globally, with

stakeholders often perceiving „sustainability" and „development" in varying ways, where socio-economic debates are ongoing regarding whether development entails mere economic growth or striving to thrive within planetary boundaries (Emas, 2015; Raworth, 2017).

For this handbook, we conducted an overview of the current situation of Education for Sustainable Development (ESD) in three countries: Finland, Poland, and Hungary, to gauge where we are right now in terms of formal and informal sustainability education.

The Finnish curriculum

"The curriculum does not exactly say how to teach each topic, so it is up to the teachers to apply the curricula, and a challenge is how to bring the seriousness of the topic without causing stress and anxiety. We are doing education for a crisis/crises. It is a deviation from the norm. Our current system is producing a crisis. Education can be something that some people are interested in and some aren't, another way to think of it is really the heart of education: how do we make the future better?

We cannot avoid those kinds of topics, but the tricky part is HOW we deal with these issues. Sustainability is a large challenge and very politically loaded. Some people can choose to talk about crises in education, some people cannot choose because they ARE there living in those crises. So at the same time, we as educators cannot cause anxiety in students, but we have to acknowledge that we are in a privileged position. So, it is critical to think about things in critical ways."

| Manu Mäkinen, Jyväskylä Art Museum, the World at Play exhibition project

The EU and Finland share similar sustainable development strategies (Prime Minister's Office, 2007). In June 2006, Finland's National Commission on Sustainable Development adopted a revised national strategy for sustainable development, while in February of the same year, the Ministry of Education's Committee published a strategy for education on sustainable development. This now serves as Finland's national action plan for the UN Decade of Education for Sustainable Development. In 2003, sustainable development was already incorporated into the Council of State's education and research development plan, which is a key document guiding the Ministry of Education. In April 2006, the Finnish government submitted a report on education policy to the parliament, highlighting the importance of sustainable development in education, research, and innovation. Education, research, and innovation are essential components of sustainable development promotion in Finland and sustainable development promotion is an integral part of Finland's education policy goals.

Today, Finland follows the National Core Curriculum for Basic Education, which was published in 2014. ESD is considered the quintessential component of the curriculum at all levels of education in Finland. The vision for education for sustainable development is that sustainability should be integrated in curricula at all levels and in every subject (Ministry of Education, 2007). The current Finnish National Core Curriculum (FNCC) is the result of the Finnish Curriculum Reform in General Education 2012-2016, which emphasises the relevance of pedagogical standards, adaptive local school curricula, and cross-curricular learning in equipping students with 21st century competencies. The key elements of the FNCC include the general guidelines, seven transversal competences, multidisciplinary learning modules and subjects grouped to grade 1-2, grade 3-6 and grade 7-9. Increasing motivation for learning, developing the learning environments and

work methods used in schools, improving school satisfaction and meeting the needs of the changing society and working life were all underlying aims to be achieved by the implementation of the updated FNCC (Vitikka, 2016).

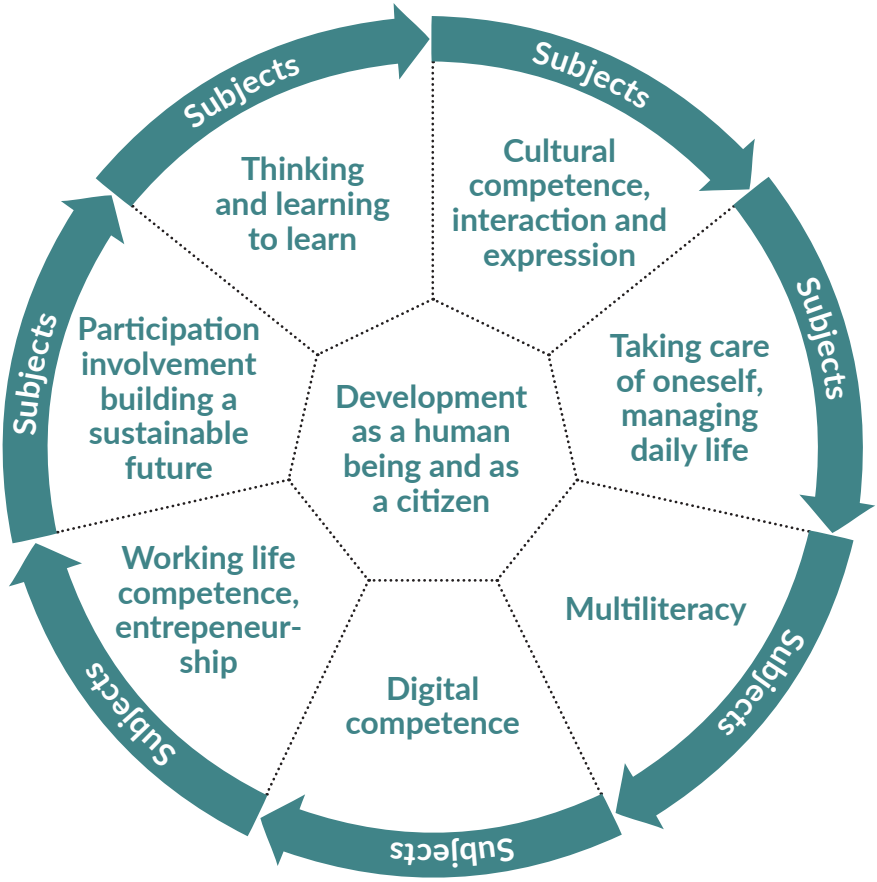
The purpose of the national core curriculum in Finland is to promote the continuous improvement of education quality and to reinforce the continuum of education. It lays the foundation for the pupils' transition from the pre-primary to basic education and from basic education to the following phase of education and training. Education providers have some freedom to make decisions on how they will implement sustainability in their teaching, for example whether there is a separate programme for sustainable development.

The Finnish national core curriculum for primary and lower secondary (basic) education entails seven transversal key competences:

1. Thinking and learning to learn
2. cultural competence, interaction and self-expression
3. Taking care of oneself and managing daily life
4. Multiliteracy
5. ICT competence
6. Working life competence and entrepreneurship
7. Participation, involvement and building a sustainable future

As we can see, sustainability is one of the basic values that the Finnish national core curriculum for basic education is based on. The core curriculum recognises that humans are part of nature and completely dependent on the vitality of ecosystems, and understanding this plays a key role in the growth as a human being. Basic education acknowledges the necessity of sustainable development and ecosocial knowledge and ability, follows their principles and guides the pupils in adopting a sustainable way of living. Sustainable development and ways of living comprise an ecological and economic dimension as well as a social and cultural dimension. The leading idea of ecosocial knowledge and ability is creating ways of living and a culture that foster the inviolability of human dignity and the diversity and ability for renewal of ecosystems while building a competence base for a circular economy underpinned by sustainable use of natural resources. Ecosocial knowledge and ability means that the pupils understand the seriousness of climate change, in particular, and strive for sustainability.

The way humans develop and use technology and make decisions about technology is based on their values. They have a responsibility to steer technology into a direction that safeguards the future of humans and the environment. In basic education, the pupils examine the conflicting aspects of our modes of consumption and production in terms of a sustainable future, and seek and jointly put to practice solutions that improve our way of living over the long term. The pupils are also familiarised with social structures and solutions that impact on the development and guided in exerting influence on them. Basic education broadens the pupils' horizons, allowing them to appreciate their cross--generational global responsibility.



The new educational curriculum in Finland (Halinen, 2018)

The Finnish National Core Curriculum outlines several educational objectives aimed at enhancing students' sustainability skills, which are achieved through various means in Finnish schools. In particular, Finnish schools prioritise waste reduction and the preservation of natural resources. Finnish schools prioritise making recycling and sustainability both accessible and fashionable, while also mandating their practice. The Finnish national core curriculum for basic education emphasises the value of sustainability and acknowledges the need for sustainable development and ecosocial knowledge and ability. The curriculum aims to guide students towards adopting a sustainable way of living and understanding the significance of their actions to themselves, their local environment, society, and nature. The development of ecosocial knowledge and ability focuses on creating ways of living that foster human dignity, diversity, and renewal of ecosystems, and building a competence base for a circular economy. The curriculum promotes sustainability as part of growth as a human being and membership in society, and students are guided to evaluate their own and their community's operating methods and structures to contribute to a sustainable future. The school culture itself also promotes a sustainable way of living, with sustainable materials chosen, and immaterial factors highlighted in everyday school work. The pupils are involved in planning and implementing sustainable everyday life.

One of the missions of basic education is to promote participation in a sustainable way of living and growth as a member of a democratic society. Basic education educates the pupils to know, respect and defend human rights. As changes in the world outside the school unavoidably affect the pupils' development and well-being as well as the operation of the school, global education as part of basic education contributes to creating preconditions for fair and sustainable development in line with UN development goals.

In the national goals of education, sustainability is promoted as part of growth as a human being and membership in society, and "participation, involvement and building a sustainable future" is one of the seven transversal competences in the curriculum. During their years in basic education, the pupils consider the links between the past, the present and the future and reflect on various alternative futures. They are guided to understand the significance of their choices, way of living, and actions not only to themselves but also to their local environment, society and nature. The pupils develop capabilities for evaluating both their own and their communities' and society's operating methods and structures and for changing them so that they contribute to a sustainable future. The principles that guide the development of the school culture itself also promote a sustainable way of living, acknowledging that a learning community accounts for the necessity of a sustainable way of living in all of its activities. The school demonstrates its responsible attitude towards the environment by its everyday choices and activities. Sustainable materials are chosen, and the role that immaterial factors play is highlighted, and time is set aside and visibility is given for these factors in everyday school work. The pupils are involved in planning and implementing sustainable everyday life.

The national core curriculum is constantly being updated to ensure that changes in the world around the school can be responded to and that the school's role in building a sustainable future can be strengthened in the organisation of education.

Grades 1–2

Transversal competences in grades 1-2 promote a sustainable way of living, and the school provides a positive example. Students also learn to build a sustainable future together by thinking about fairness issues together with the teacher. In grades 1-2, environmental studies integrates many different fields of knowledge, including the perspective of sustainable development. Also, in ethics education, pupils explore different forms of life on Earth, reflecting on the finite nature of life and examining the impact of their choices and actions on their surroundings. In visual arts, students are encouraged to take sustainability into account in their creative expression, and in crafts, students experiment with multiple ways of reusing materials and expand their knowledge of the surrounding material world, which lays a foundation for sustainable development and a sustainable way of living.

Grades 3-6

The teaching of transversal competences continues in grades 3-6. As the pupil develops, this is a particularly opportune time in the pupil's development for adopting a sustainable way of living and reflecting upon the need for sustainable development. Some of the transversal objectives during these grades include supporting the pupil's environmental awareness and guiding the pupil to act and become involved in their surroundings and community in order to promote sustainable development and to appreciate the significance of sustainable development to themselves and the world. During these grades, the following are focused on in terms of sustainability:

- Use ICT sustainably, and also continue to be taught to participate in building a sustainable future.
- Environmental studies continue to include the perspective of sustainable development, paying attention to ecological, cultural, social, and economic dimensions of sustainable development.
- In ethics and religion, pupils examine different conceptions of nature, the future of nature and humankind as well as sustainable development. They also practise analysing their views and justifying them in relation to their worldview and a sustainable future.
- In crafts, pupils are challenged to critically examine people's consumer habits and the methods of production from the viewpoints of justice, ethics, and sustainable development.

Grades 7-9

In grades 7-9, the curriculum discusses issues of sustainability in the following way:

- Health education: sustainability is discussed as part of health education in grades 7-9, where when examining a sustainable way of life, social sustainability, and responsible consumption are taken into account.

- Home economics: pupils are taught to act economically when selecting and using materials and technology and also to consider the choices in terms of health and sustainability.

- Biology classes guide the pupils toward a sustainable way of living and understanding global responsibility, inspiring them to become actively involved in building a sustainable future. Contents include preservation of biodiversity, climate change, sustainable use of natural resources, and changes in the surroundings. The pupils reflect on the ecological, social, economic, and ethical principles of using natural resources, as well as sustainable food production and animal welfare. The opportunities provided by bioeconomy and ecosystem services for a sustainable future are discussed. The pupils get acquainted with the goals, approaches, and accomplishments of nature conservation.

- Geography: the pupils' preconditions for acting in a way that promotes sustainable development are enhanced in the teaching and learning of geography. Instruction supports the development of the pupils' skills for participation and involvement and provides the pupils with means for active citizenship and building a sustainable future. Students consider the interaction between human

activities and the natural environment and understand the significance of sustainable use of natural resources, committing to a sustainable way of living.

- Physics and chemistry studies emphasise the competences in building a sustainable future: to evaluate personal choices in terms of sustainable use of energy resources and product life cycles.

- Religion and ethics studies continue to emphasise issues of sustainability in terms of emphasising the possibilities for a sustainable future for nature and the society as well as discussing questions of environmental ethics, such as animal rights. They reflect on responsible actions for the good of a sustainable future both locally and globally.

- Social studies guides the pupil to understand responsible consumerism with the principles of sustainable development, and to examine the economy from the viewpoints of sustainable development and different economic factors.

- Visual arts guides pupils to take cultural diversity and sustainable development into account in their visual production as well as to influence through their images.

- Crafts continue to guide the pupil to thinking economically and to make choices in the crafts processes that promote a sustainable way of living.

- Home economics develops the knowledge, skills and attitudes and readiness required to master everyday life adopting a sustainable way of living that promotes well-being. Home econom-

ics promotes manual skills and creativity as well as the ability to make sustainable choices and act sustainably in daily life at home. The instruction lays a foundation for sustainable living, and teaches to pay attention to environmentally conscious and cost-conscious living.

The Finnish Ministry of Education recognizes the importance of sustainable development and considers education as a key instrument for change in achieving the United Nations Agenda 2030 for Sustainable Development. However, despite the emphasis on sustainability in the 2014 Finnish national core curriculum for basic education, there is a lack of concrete actions in Finnish schools. The enactment of the curriculum faces various cultural hindering and promoting elements, making change towards sustainability across all levels of activity in Finland complicated (Mykrä, 2023). To improve equity and inclusivity in the educational model, it is recommended that special attention be paid to the significant differences in sustainability-related perceptions between boys and girls, as well as pupils with varying educational aspirations. (Naukkarinen and Jouhkimo, 2021). The Finnish National Agency for Education also stresses the importance of education in achieving a sustainable future, enablers of sustainable development in schools and learning environments, while highlighting the need to pay special attention to developing educational models for better equity and inclusivity, based on the significant differences in sustainability-related perceptions between different groups of students.

Sitra: Toward a circular economy

In 2015, Finland's future fund Sitra[3] launched a circular economy project to start Finland's journey towards a circular economy, but specific measures were limited until the project was extended to four years, resulting in a series of circular economy projects for all levels of education. The aim of the project was to support the development of skills, knowledge, and understanding of the circular economy in Finland to enable people to live within the planet's carrying capacity. Education will play a key role in transitioning to a circular economy, and it needs to react to changes and involve everyone in the educational sphere. Lifelong learning is crucial, and organisations and information channels outside the educational field have a significant role to play (Pajunen and Silvennoinen, 2019).

Sitra's circular economy project aimed to start Finland's journey towards a circular economy by supporting the emergence of skills, knowledge, and understanding of the circular economy in Finland. An impact evaluation concluded that Sitra's role in the development of circular economy teaching has been excellent, and the circular economy has become mainstream in Finland. However, challenges identified included a shortage of expertise, predominant attitudes towards the subject, and existing structures that hindered multidisciplinary cooperation. To address these challenges, feedback suggested the need for increased further education in all fields, more cooperation between different levels of education, and the circular economy to be included in strategies and plans. Students were interested in having an influence on creating a more sustainable future and learning more about the subject future and learning more about the subject (Pajunen and Silvennoinen, 2019).

3

To achieve the goals of sustainability, competence building, empowerment, and awareness-raising are viewed as key strategies. Responsibility and active citizenship are emphasised as focal points. Democracy is considered an essential prerequisite for sustainable development. However, it is important to recognize that values, ethics, and the conceptual understanding of sustainable development vary depending on the context. Therefore, we should allow for various approaches and solutions (Ministry of Education, 2007).

Finland's initiatives and practices for better Education for Sustainable Development

The Finnish National Core Curriculum outlines several educational objectives aimed at enhancing students' sustainability skills, which are achieved through various means in Finnish schools. In particular, Finnish schools prioritise waste reduction and the preservation of natural resources. Finnish schools have implemented several educational practices to promote recycling and sustainability. Overall, these practices help Finnish schools to reduce their environmental footprint and inspire students to become responsible global citizens who are committed to protecting the planet. Some of the best practices include:

- Environmental education: Environmental education is integrated into the curriculum to educate students about environmental is-

sues, conservation, and sustainability. Students learn about the impacts of human activities on the environment and are encouraged to take action to protect the planet.

- Project-based learning: Project-based learning is a common educational practice in Finnish schools, where students work on long-term projects that require research, planning, and collaboration. Many of these projects focus on sustainability and environmental issues, such as reducing waste and promoting sustainable transportation.

- Experiential learning: Finnish schools emphasise experiential learning, where students learn by doing and experiencing. For example, students may participate in outdoor activities, such as nature walks, where they learn about the natural world and the importance of protecting it.

- Student-led initiatives: Finnish schools encourage students to take an active role in promoting sustainability and recycling. Students may initiate recycling programs, organise events and campaigns, and lead environmental initiatives in their schools and communities.

- Waste separation: Finnish schools have a comprehensive waste separation system that ensures different types of waste are sorted and disposed of properly. Students are taught how to separate waste into categories such as paper, cardboard, plastic, metal, and glass. For a good report on good practices on waste separation from the finnish government, please visit [4]

- Composting: Many schools have composting systems that enable them to recycle organic waste, such as food scraps and yard waste, into nutrient-rich soil for gardening and landscaping.

4

- Energy-efficient practices: Schools in Finland have adopted various energy-efficient practices, such as using LED lighting and motion sensors to turn lights off when not in use, and implementing efficient heating and cooling systems to reduce energy consumption. Renewable energy sources are also emphasised.

- Green transportation: Finnish schools encourage students to use environmentally friendly transportation, such as walking, cycling, or public transport. Some schools have also introduced carpooling programs to reduce carbon emissions from transportation.

Many Finnish schools utilise water and solar energy. (Peda.net)

School waste recycling stations. (Peda.net)

Finnish children biking to school. (peda.net)

The Green Flag program [5]

The Green Flag program is an international sustainable development program for schools and kindergartens, which recognizes institutions that meet certain criteria by allowing them to use the ‚Green Flag' as a symbol of their dedication to sustainability. The program is based on principles such as active participation of children and young people, reduction of environmental waste, integration of sustainable development into everyday life, continuous improvement, and collaboration with the surrounding society. In Finland, the Foundation for Environmental Education has developed its own teaching and education materials for the country's daycare and school system based on the Green Flag program.

Finnish children walking to school. (Peda.net)

5

The Sustainable Development Certification for Educational Institutions [6]

The „Sustainable Development Certification for Educational Institutions" is a program managed by the OKKA Foundation. It provides evaluation tools, materials, guidance, and training to support schools and educational institutions in their sustainable development efforts. The certification system is based on criteria that encourage staff and students to assess and improve the institution's operations collaboratively.

Using these criteria, an institution can develop its own sustainable development program. The system also allows for external evaluation and certification and aligns with quality management tools used by educational institutions. The certification is aimed at primary schools, secondary schools, vocational institutions, and adult education centres.

Hundreds of educational institutions and thousands of teachers have benefited from the system's tools. The OKKA Foundation has trained a nationwide network of auditors in Finland, consisting of teachers and experts in sustainable development.

6

The School Repair Guide – Towards Carbon Neutrality (in Finnish) [7]

The Repair Guide – Towards Carbon Neutrality" is an educational resource designed to support schools in their climate initiatives and well-being efforts. It includes:

- A handbook highlighting the climate work of the school community.
- 42 climate tasks/competence badges for students, applicable across various subjects.
- A roadmap model consisting of four competence badges for the school community.
- A carbon calculator available in Excel format and a web-based calculator.

The roadmap aims for schools to become carbon neutral by 2030, starting with the creation of a vision, mapping the current state, and selecting actionable climate initiatives. Ultimately, these elements will form a comprehensive community roadmap for the school.

The guide integrates climate competence badges for students and can be used to identify climate viewpoints in different subjects. The climate tasks for students include projects that assess the school's climate impact, gather data, build visions, reflect on history, and guide planning of climate actions.

7

New features in the School Repair Guide include the acceptance of student competence badges at Oulu University of Applied Sciences. Schools can use the carbon calculators for emissions calculations, with a web-based version to enhance usability and visualise the school's emissions more effectively.

The MAPPA Multifunctional Tool for Teachers (in Finnish) [8]

MAPPA.fi is a multifunctional tool and sharing platform for teachers focused on sustainability education. It offers access to over 300 resources designed to enhance sustainability skills, including learning materials, training, and support services. Users can also share their own content.

The resources are categorized for easy navigation based on target groups, objectives from high school and basic education curricula, topics, and themes. Basic use of the service does not require registration. Users can search by keywords, browse thematic folders, or check the calendar for events.

Logged-in users can favorite their preferred materials, create thematic folders, or design learning modules. MAPPA serves as a showcase for projects and outcomes implemented in schools, promoting the spread of tested ideas and effective practices through good examples.

The platform is maintained by the Union of Finnish Nature and Environmental Schools, with funding from the Ministry of Education and Culture.

8

Planetary Responsibility in Action at the World at Play Exhibition

The World at Play exhibition, held from October 27, 2023, to April 28, 2024, at the Art Museum of Jyväskylä, Finland, presented a compelling fusion of art, science, and technology under the umbrella of STEAM learning. The exhibition, which Sirpa Turpeinen of the Jyväskylä Art Museum and Kristof Fenyvesi of the University of Jyväskylä curated, featured 28 remarkable works by South African children and youth. These pieces emerged from a South African-Finnish educational cooperation with the Govan Mbeki Mathematics Development Centre (GMMDC) at Nelson Mandela University in Gqeberha, South Africa.[3] The project enhanced teacher's professional development in collaborative teaching practices and combined art with mathematics. The children and youth artworks, as the main outcomes of the program, illustrate the profound connection between young people's lives, their emotions, experiences, and the universal language of mathematics.

Nicola Nothnagel, 11th grade: Unlimited.

Lisha Lovely 9. Grade: Leaning against my Universe.

Reflections on Sustainability and Planetary Responsibility

The artworks displayed were not just creative expressions; they were profound reflections on the relationship between mathematics and various aspects of the world — nature, culture, and the cosmos. More importantly, these pieces echoed the young African artists' perspectives on sustainability and responsibility. By exploring these themes, the artworks encouraged viewers to consider the ecological and social implications of human activity and our collective responsibility towards sustainable development.

Jemma Fourie, 10th grade: Proportionally EQUAL.

Planetary Thinking and Inspirational Outcomes:

The works showcased in the exhibition epitomised planetary thinking and global dialogue and served as a source of inspiration for Finnish children and youth who created their own artworks during the exhibition tours and participated in various workshops. These activities aimed to spur a deeper exploration among the youth about what constitutes a better future and the roles science and art can play in bringing hope and sustainability to the forefront of societal development.

Workshops and Creative Exploration of Sustainable Development:

The focus of the accompanying workshops was to encourage children and young people to creatively explore sustainable development. Questions such as „What is a better future and how do we make it happen?" and „How can artificial intelligence and art support sustainable development?" were central to the activities the participating Finnish students carried out at the exhibition spaces. These workshops gave students a platform to integrate the principles of sustainable development as outlined in the UN's 2030 Agenda while using art and science as tools to envision and influence a hopeful future.

Travis Vermaak 9th, grade: Industrial Waste.

Understanding and Implementing Sustainable Development:

Understanding and Implementing Sustainable Development: The UN's 2030 Agenda for Sustainable Development aims to eradicate extreme poverty and achieve sustainable growth by balancing environmental, economic, and social needs, ensuring no one is left behind. The concept of planetary boundaries is crucial in this context, highlighting the need to adapt human activities to the earth's natural resources and resilience. The social basis for sustainable development emphasizes fundamental human rights to water, food, housing, health care, education, employment, and participation in political processes, advocating for a safe, just, and equitable society.

In the halls of the World at Play Exhibition

Call to Action for Sustainability:

The exhibition and workshops prompted the participating Finnish children to reflect on how they can implement sustainability in their own lives and what aspects they would like to influence. By engaging with the themes presented through the artworks, participants were encouraged to think about the ecological ceiling and the pressing environmental challenges such as climate change, ocean acidification, and biodiversity loss, and how these can be mitigated through collective and informed action.

The World at Play exhibition successfully demonstrated how integrating STEAM education with themes of sustainability and global responsibility can inspire and educate children and young people across continents. It provided a vivid example of how artistic and mathematical expressions, when combined, can deepen understanding and foster a commitment to creating a sustainable and hopeful future.

Video Guidance for teaching Education for Sustainable Development via the Phenomenon-based Learning method

Phenomenon-based learning (PhBL) is a hallmark of Finland's innovative approach to education for sustainable development. This holistic method links school knowledge to real-world problems, promoting the development of critical problem-solving skills. By placing a specific phenomenon, such as ‚poverty' or‚sustainability,' at the center of the investigation, PhBL integrates knowledge from various disciplines, encouraging students to examine complex concepts through multiple lenses. The Finnish National Core Curriculum 2016 mandates 1-2 PhBL project weeks per academic year, highlighting its importance in fostering interdisciplinary learning and real-world application.

In a pioneering project, Finn Minta and Alteredu Nonprofit Kft. collaborated to create supportive video materials to promote the effectiveness of PhBL in ESD. Teachers involved in the project carefully planned and executed a PhBL teaching week focused on sustainability, documenting the entire process through video recordings (see video links below). These materials offer a detailed view of how PhBL is implemented in Finnish schools, showcasing the integration of various disciplines and the development of problem-solving skills. Building on the success of this initiative in Finland, the PhBL week was replicated in Hungary, with the teaching process again captured on video.

These video recordings serve as valuable professional development resources for educators, providing insights into both PhBL and positive pedagogy, and demonstrating the competencies and skills developed through this approach.

Finn Minta, meaning „Finnish Example," is dedicated to promoting Finnish pedagogy, particularly phenomenon-based learning, and facilitating the exchange of best practices among educators worldwide. Through teacher forums, workshops, and training sessions, they foster meaningful exchanges that enrich teachinmethodologies on a global scale.[9]

9
For more information, visit **www.finnminta.com** (info@finnminta.com) and **www.altereduhungary.org/en/home**

VIDEO PLAYLIST:

Arts & Craft best practices from Finland & Hungary [10]

Arts and Crafts lessons provide excellent opportunities to emphasize the significance of sustainability and environmental consciousness.

Waste Processing and Recycling [11]

Using the phenomenon-based approach to education, both Hungarian and Finnish first- and second-graders were learning about waste processing and recycling in an interactive way applying multidisciplinary approaches. Students learned about responsible consumption and environmentally conscious decisions through hands-on experiences.

Fast Fashion and Sustainable Fashion (Part 1) [12]

Using the phenomenon-based approach to education, both Hungarian and Finnish first- and second-graders were learning about waste processing and recycling in an interactive way applying multidisciplinary approaches. Students learned about responsible consumption and environmentally conscious decisions through hands-on experiences

10 11 12

Fast Fashion and Sustainable Fashion (Part 2) [13]

Arts and Crafts lessons provide excellent opportunities to emphasize the significance of sustainability and environmental consciousness.

Sustainable School Canteen Practices in Finland [14]

Embark on a journey into the heart of Finnish education, where sustainability isn't just a lesson but an integral part of daily school life. In our upcoming video, witness how the school's meal culture plays a pivotal role in teaching life skills, independence, and responsibility. Explore the unique dining experience, where students take charge, making conscious choices, minimizing food waste, and even participating in the communal responsibility for cleanliness. Join us as we uncover the fascinating aspects of this holistic approach, promoting equality, communication, and a foundation for sustainable living within the school community.

Social Sustainability, Community, Communication [15]

Explore the transformative impact of discussion circles at Tikka School, unlocking the potential for social sustainability. Dive into the heart of safe learning environments as students candidly share experiences, fostering unity and support. Join us on this journey towards building connections and creating a positive educational atmosphere!

13 14 15

Decision-makers of the World (Part 1) [16]

Using the phenomenon-based approach to education, students at Tikka School learnt about various aspects of sustainability in a comprehensive and interactive manner. The goal was for students to become more responsible and knowledgeable decision-makers through role-playing as global decision-makers, who take action against climate change and contribute to the Sustainable Development Goals at the local level.

Decision-makers of the World (Part 2) [17]

Tikka School students delved into a comprehensive and interactive exploration of various sustainability aspects using the phenomenon-based education approach. The overarching goal remained to foster responsible and knowledgeable decision-makers through engaging role-playing scenarios as global decision-makers, enabling them to combat climate change and contribute to the local achievement of Sustainable Development Goals.

Co-teaching Practices [18]

Join us on the journey to discover co-teaching. Learn more about this instructional strategy where two or more teachers work collaboratively n a shared classroom in order to support the diverse learning needs of students. Dive with us into how to create a more inclusive and effective learning environment, breaking down traditional barriers between general education and special education.

16 17 18

Involving stakeholders in sustainable education [19]

Welcome to the captivating journey of involving stakeholders in sustainable education. Through immersive experiences and collaborative efforts, Finnish and Hungarian project weeks showcase the transformative power of community-driven initiatives. From engaging in waste management activities to fostering family participation in preparatory tasks, every step reinforces the importance of collective action. Students explore the real-world implications of sustainability, from visiting waste processing factories to learning about recycling processes in grocery stores. With the support of families, civil organizations, and educators, these initiatives instill a sense of responsibility and empower students to make a tangible difference. Join us as we celebrate the unity and dedication of stakeholders in shaping a greener, more sustainable future for generations to come.

Evaluation practices in Finland [20]

Watch our videos on how evaluation works in practice in Finland.

Positive Pedagogy from Finland [21]

Facing challenges in the school canteen during lunch, educators implemented a creative solution blending positive pedagogy and gamification. The initiative not only improved canteen manners but also exemplified the efficacy of positive pedagogy in fostering a supportive learning environment. In Finnish schools, such approaches prioritize positive interactions and community-building, recognizing the impact of a nurturing atmosphere on educational and social outcomes.

19 20 21

Conflict management with positive pedagogy [22]

Join us in reflecting on a powerful moment from the Finnish project week, where we witnessed the transformative impact of positive pedagogy in action!

Cardboard recycling from Finland and from Hungary [23]

In this captivating video, witness the 4th graders' immersive exploration into the world of cardboard recycling. From sorting materials to learning new vocabulary in English lessons, these students embarked on a multi-faceted learning experience. Through critical thinking and collaboration, they tackled the cardboard recycling challenge, paving the way for a brighter, greener future.

Student-centered learning environment [24]

Discover the Finnish student-centered approach to education at Tikka School! With a focus on equality, flexibility, and holistic development, Finnish education emphasizes individualized learning paths and less emphasis on standardized testing. Teachers have the autonomy to tailor their curriculum and methods, fostering collaboration and critical thinking. At Tikka School, we create a supportive environment where students can thrive, with flexible learning spaces and a commitment to holistic development. Join us and explore how this approach nurtures lifelong learners and prepares students for success in the real world!

22 23 24

Muhos upper secondary school. Picture: Muhoksen Lukio

Sustainability and recycling tips from Finnish schools in Muhos, Northern Finland

Finnish schools work to constantly renew their sustainability policies in regards to sustainability. One such reform recently took place in Muhos, Northern Finland. We contacted Minna Kemppainen, the Muhos school principal for information about how they did it.

Several schools in Northern Finland received targeted funding to create a school sustainability reform in 2022, when teachers from three schools gathered together for a cooperative day to awaken the teachers to issues of sustainability (Kemppainen et al., n.d.). Two teachers specialised in climate tutoring began at each of the three schools, who, together with students, planned out their respective schools' agenda of reform. In 2023, 11 excited students became the renovators for their schools, through extracurricular work over eight weeks, for which they received study credits. The renovations were planned using a guide for school renovations. The themes of the renewal were 1. Food, 2. Waste organisations, 3. Recycling and

sustainable acquisitions, and 4. Energy. Some good practices found were:

Food:

- Gathering information about food loss by using a food scale in the waste bin
- Acquiring information about planetary diets and utilising that information in the planning of the canteen menu
- Developing methods to lift the "special diet" tag from vegetarian food, and just incorporating vegetarian food as a normal option
- Investigating the processing of surplus food and considering possible improvements
- Presenting the aforementioned to the municipal meal service leader
- Deciding on the applicable development ideas together

Waste organisation:

- Taking inventory of the waste and recycling stations in the school, considering their placement,size, and sufficiency, and analysing whether the recycling of some type of material can be improved
- Considering the good principles used in the school in regards to waste separation.
- Presenting an inventory of repair and supplement plans to the school principal or the municipal leadership

- Assessing the attitudes of students and staff toward recycling

Recycling and sustainable acquisitions:

- Creating awareness of the differences between fast fashion and sustainable quality

- Observing the sustainability of the acquisitions of the school: are they sustainable, safe and ecological, and have they been produced locally?

Energy:

- Creating awareness of green transportation in the school such as walking or biking and presenting the results to the renovation crew

Travelling to eco centres, water treatment plants, and sustainable restaurants were also a part of the program, and the three schools also gathered together to compare and swap ideas. Sustainable thinking is part of the schools' everyday functionality. It is crucial to highlight even the smallest of sustainable choices, and to not only think of sustainability in regards to specific things but more holistically (Kemppainen et al., n.d.).

In addition to sharing the aforementioned information about school reforms, the school principal of Muhos upper secondary school Minna Kemppainen was also kind enough to lead us on a small tour of how they approach issues of sustainability and recycling in their school. While walking, she explained to the students that the photos were being taken for a university research project and were related to environmental education (recycling and environmental awareness), and the students started suggesting photo targets.

„Muhos Upper Secondary School is a modern institution located in a school building that was put into use in August 2020. Nevertheless, the school has a lot of recycled furniture, some of which is nostalgically collected from even old closed-down primary schools, and some has been refurbished by professionals. Some of them are made from solid wood and therefore are almost eternal."

| Minna Kemppainen, Muhos School Principal, Finland

Refurbished and repainted tables. Muhos Upper Secondary School, Finland

„These are old chairs that have been modified for use in the upper secondary school. They also have refurbished picture frame boxes, containing images that can still be used in biology lessons. Also, a refurbished map stand."

„This is, therefore, teaching recycling through the environment - appreciation for old objects. As not all of the furniture is new and made of particleboard or plastic, the students have noticed this too! Perhaps the most delicious was about laptops. Each upper secondary student has a computer... ours are recycled, professionally maintained laptops. So, the students knew this and suggested taking a picture."

Refurbished picture frame boxes. Muhos Upper Secondary School, Finland

„Recycling. There are also other collection containers throughout the school within reach of the students. The containers are placed in close proximity to ping pong tables, bean bag chairs, and the student café. At the school, action is taken if bottles and aluminium cans are found in regular trash cans! At the beginning of the school year, some time is spent teaching the first-graders, but by Christmas, everyone knows why and how to recycle."

Recycling bins. Muhos Upper Secondary School, Finland

Restored principal's desk. Muhos Upper Secondary School, Finland

Second hand furniture at Muhos Upper Secondary School, Finland

Refurbished wooden cabinet. Muhos Upper Secondary School, Finland

„Restored over a hundred-year-old principal's desk. Original production Domus chairs (the original banquet hall chairs from the dismantled school) which were in very poor condition. They were going to the landfill multiple times. The municipality made a deal with a professional to restore some for the school and sell the rest as restored. This funded the project and all the chairs got a second life, without the school having to spend money on the limited budget."

„A sturdy set of traditional Finnish furniture, purchased from an online marketplace called tori.fi. Despite having the budget to buy new furniture from a store, this set was chosen and retrieved. Yki Nummi's design lamps are placed over the dining table."

„An old fully restored wooden cabinet in the art classroom by a professional. Similarly, a restored bench from the old dressed-up high school building in the same tone."

School indoor architecture. Muhos Upper Secondary School, Finland

Recycled lids and containers. Muhos Upper Secondary School, Finland

„And real houseplants near Riikka Keränen's art piece, next to the benches and clay wall. Emphasis on visual appeal, shoelessness, and promoting a culture of caring for the school environment -> also encourages young people to care for the environment and appreciate beauty more broadly."

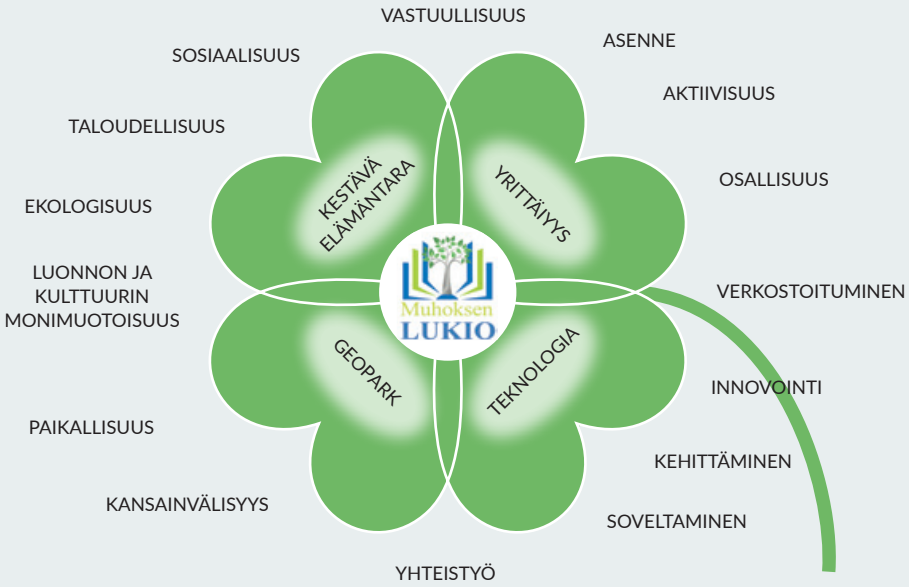
„Sorting waste and recycling are everyday practices for both students and staff. Success and commitment require a bit of organising, effort, initiative, and reminders. The collection containers don't have to be fancy or expensive. Good sorting boxes can be found at Ikea for a low cost. Students can decorate the lids and attach instructions using contact plastic."

„The pictures show a small idea from the art classroom. Colourful plastic plates are actually food packaging lids. Their new life is now as mixing trays/colour palettes for paints in art class. Ready-made food containers are also useful for art or biology lab experiments."

„In Erasmus+ international projects, we have chosen topics related to sustainable development and the goals of the United Nations Agenda 2030 program. In our school culture, we aim to consider waste sorting, recycling, and saving materials. Sustainable future is one of the values of our school, so it is reflected in the teaching of all subjects."

„Measuring the school's operations is done well by students in mandatory modules where they need to do some environmental research. Some can check the school's operations and the attitudes of students and staff."

| Minna Kemppainen, school principal of Muhos Upper Secondary School, Finland



Muhos Upper Secondary School curriculum's goals

The Polish Curriculum

In Poland, the ideas for environment protection, sustainability and recycling in education for grades 1-3 primary school are included in the educational process and based on the National Curriculum Framework, which emphasises the importance of environmental education and the concept of environmental protection as well as to foster their interest and awareness of sustainability and recycling from an early age.

The curriculum for grades 1-3 primary school covers a range of topics related to sustainability and recycling, including the natural environment, natural resources, waste management, and renewable energy sources. The curriculum is designed to be age-appropriate and engaging, with a focus on hands-on learning and practical activities that help students develop a deeper understanding of environmental issues.

In the first grade, students learn about their natural environment, such as plants and animals (including species living in the area), and their habits and basic needs. They also learn about the importance of natural resources and their protection for the neighbourhood.

Students learn about the basic components of the environment and how they relate to each other, as well as the importance of biodiversity and the role of humans in maintaining the natural balance and preserving the endangered species of plants and animals.

In the second grade, students expand their knowledge to include environmental issues, such as air and water pollution, and the importance of recycling. Students learn about different types of pollution, how they are caused, and the impact they have on the environment and human health. It is important to teach about modern ways of protecting the environment from pollution (installations and plants that prevent air and water pollution present in the local area). They also learn about the importance of recycling and how to sort and separate waste materials.

In the third grade, students learn about waste management, biodiversity, and renewable energy sources. They learn about the different types of waste, how waste is generated, and how it can be managed and recycled. They also learn about biodiversity and the importance of protecting and preserving it. Students learn about different renewable energy sources and how they can be used to reduce reliance on fossil fuels. As far as possible they are encouraged to observe good practices related to biodiversity and recycling in their local area.

The core curriculum for grades 1-3 of the Primary School covers issues related to sustainable development and recycling, with an emphasis on ecological education. According to the guidelines contained in the NNC, each school is obliged to educate “children and youth in manners of acceptance and respect towards other people, forms an attitude of regard for the natural environment, popularises awareness about philosophy of sustainability, motivates to take actions for environmental protection and builds interest in ecology.”

The National Core Curriculum recommends the organisation of activities „allowing the perception of the natural environment

and its exploration, learning about the values and interconnections of the components of the natural environment, learning about the values and norms that are the source of a healthy ecosystem, and behaviours resulting from these values, as well as discovering by the children themselves as the important integral subjects of this environment."

In grades 1-3, teaching is conducted without division into subjects. Educational programs include: Polish language, maths, IT, social and environmental education, music, art and technical education, physical education. All children in grades 1-3 learn one modern foreign language, and children from ethnic or regional minorities may also attend classes in the language of their group. Topics related to sustainability and recycling are integrated into environmental education.

During the environmental education program students are taught to pay attention towards the natural environment and connections between elements of it, values and norms that are present and necessary in a healthy ecosystem. Executing NCC of environmental education students gain knowledge about national parks, natural monuments in the region. Waste separation is another topic brought to attention. Students are expected to learn about the impact of human activities on the natural environment. They learn about the importance of natural resources, the water cycle, and how to care for the environment. Specifically students in this age group are expected to:

- Observe and describe the natural world around them, including plants and animals
- Learn about the importance of clean air, water, and soil
- Recognize the importance of saving energy and water
- Learn about the three Rs - reduce, reuse, recycle
- Sort waste materials and identify the appropriate ways to recycle them

- Learn about the impact of pollution on the environment and on human health
- Identify ways to protect and care for the natural environment
- Explore how humans can live sustainably with the natural world

It is worth noting that thanks to EU funds, EEA funds, private funds and crowdfunding, many ecological education campaigns have been carried out in schools in recent years and numerous environmental education materials have been developed, including ready-made lesson plans for grades 1-3. These programs are very often based on field experience and observation and encourage schools to set up flower gardens, vegetable gardens and rain gardens, the houses for pollinating insects and apiaries, school meteorological stations, etc. where children can learn through experience. More and more primary schools decide to do that. Most schools, on holidays such as Earth Day, take part in actions such as planting trees and melliferous plants on wastelands or get involved in the worldwide Clean Up the World campaign, and teachers and students (sometimes with their families) clean up the surrounding green areas. Some schools establish cooperation with shelters for homeless animals, covering not only annual collections of food and blankets in schools, but also walking dogs from the shelters by students of primary schools and their families. Many schools carry out „bike to school" campaigns to raise awareness of air pollution from traffic and organise campaigns to collect recyclables: waste paper, plastic, batteries, etc. They often have the formula of a competition between classes or schools in a given town (who will collect more). Waste segregation has been introduced in most schools. As part of reducing plastic waste, drinking water fountains have been installed in many schools.

In recent years, the external offer for schools and kindergartens has also increased significantly. Many institutions such as Ecological Education and Information Centers have beencreated and now offer workshops, lectures and exhibitions devoted to various issues related to ecology and sustainable development. Schools and kindergartens volunteer to use that offer.

Although the Polish Core Curriculum doesn't mention the concept of recycling, in the majority of Polish schools teachers and students actively engage in recycling practices. Teachers explain the importance of recycling and implement good practices related to it. In many cases the teachers are creating their own programs and practices that include working together with local NGOs and pro-ecological activists. The trips to the local natural reserves, national parks and natural forests are very popular and quite often they go beyond the curriculum.

The National Core Curriculum is not fully responding to the recent documents adopted by Poland in the National Environmental Policy. The National Environmental Policy 2030 specifies and operationalises the provisions of the Strategy for Reasonable Development until 2020 (with an Outlook until 2030). Its aim is to ensure Poland's environmental safety and a high quality of life for all its citizens. It strengthens the Government's actions to build an innovative economy while complying with the principles of sustainable development. Its specific objectives are to respond to challenges in the field of the environment, in a manner enabling the issues of environmental protection to be coupled with the economic and social needs related to health, economic and climate.

The implementation of the environmental objectives is to be supported by horizontal objectives related to environmental education and to the effective functioning of environmental protection instruments. The 2030 National Environmental Policy will provide the basis for investing European funds under the financial perspec-

tive 2021–2027. The Strategy also supports the implementation of Poland's international objectives and commitments, including those at the EU and UN levels, particularly, in the context of EU 2030 climate and energy policy objectives and the Sustainable Development Goals set out in the 2030.

Many researchers are concerned with the way how ecological education, sustainability and recycling is treated in the national curriculum standards. In 2015, the yearly World Environmental Education Congress was accompanied by a special edition of "Journal of Curriculum Studies" devoted to the subject of "Curriculum Challenges for and from Environmental Education".

The new development agenda of the United Nations Organization - Agenda 2030 from 2015 demanded global revision of the national educational standards in the sphere of goals and contents devoted to ecological education including education for sustainable development.

In Poland neither Agenda 2030 nor new evidence for upcoming climate catastrophe included in the last Intergovernmental Panel on Climate Change (IPCC 2) report did not ignite program debate on the subject of ecological education goals and contents and its place in Core Curriculum. The National Ecological Education Strategy of 2001 has not been modernised in 20 years nor has it been replaced by a new document. Among the core of school subjects, despite the passage of time, there is still no space for ecological, climate and sustainable development education. Yet, taking into account the importance of the subject in the global trends, in the current and future international and national policy such a content could and should be present in the recent Core Curriculum of 2017, at least scattered among many school subjects."

The European Union has adapted the European Green Deal directive. Poland as a member of the EU is obliged to implement changes to its Core Curriculum but it has not happened yet. Climate

Crisis is a global phenomenon and it has to be solved on the global scale, yet every nation has to participate in finding ways to improve sustainability and environmental protection. The main goal is to make young generations aware of the looming climate catastrophe and the necessity of sustainability and recycling, to avoid the worst scenario. Current efforts to minimise the climate crisis are insufficient. Ecological education is now more than just part of the biology curriculum, it comprises other fields of school subjects.

Agnieszka Kozłowska (2021) in her study "Ecological Education in the Polish Core Curriculum" concluded that the concept of ecological crisis or ecological transformation is never mentioned in the Core Curriculum. The terms such as: recycling, smog, disposable plastic, micro-plastic, circular economy are also absent. There is no reference to an idea of the anthropocene - which is widely covered in the scientific media. There is no attempt to explain the concepts of ecological footprint, water footprint, carbon footprint. There is no attempt to assess "ecological value" of behaviours or products in the context of the Life Cycle Assessment of a product from the raw materials to product utilisation. In the Core Curriculum for the grades 1-3 in the Primary School the following subjects are mentioned: waste segregation, national parks, nature reserve, protected areas, natural monument, waste, disposable packages.

In the course of evolution and development of the strategies for environmental education that subject became something more than just biology. It has incorporated biology and sociology approaches to environment protection in order to become a tool to popularise sustainable development. The Institute for Ecological Development has prepared a handbook for teachers that would be very useful in their practice Compendium of Knowledge on Nature 2000 Network" and the problems related to that network. It is full of precious educational tools - unfortunately it is designed only for the high school teachers.

According to Frątczak and Frątczak (1993, p. 13) The primary aims of the education at the level of third grade primary school students are to:

- Learn motives and ways of protecting and shaping environment
- Develop abilities to perceive phenomena observed in the ecosystems
- Expect and foresee the consequences of the observed natural phenomena as well as human activities in the environment
- Create certain emotional attitude towards the natural phenomena and objects present in the natural environment of mankind
- Form and consolidate positive attitudes towards certain natural phenomena and objects present in the natural environment as well as towards the elements and the natural environment in its integrity."

The attitudes developed at that early stage of school education are crucial for the further school achievements of students and could determine their approach to ecological education. The students should gain the basic knowledge but it is even more important what values they would adopt. The positive values, environmental awareness and sensitivity shaped during the childhood years benefit for the rest of an individual life. Therefore it is so important what kind of knowledge and attitudes the students gain during their first years of education. It should be stressed that parents have a crucial role to play in shaping children's ecological awareness. Accordingly, the parents' ecological awareness and their attitudes are of vital importance. The teachers should concentrate on the shaping of the

ecological awareness and pro-ecological attitudes of their pupils. Ecological awareness "Is a form manifested in the thoughts and feelings of individual people as well as in the socially functioning standards of understanding, feeling and valuing of the biosphere" (Hull, 1984, p. 24) Ecological awareness "determines human attitude towards nature and environment, demanding changes in the way of thinking, feeling and values attached to the natural environment" (Frątczak, 1995, p. 7).

The high status of education in the process of creating ecological awareness is stressed by (Parlak and Hłobił, 2016, p. 89). A constant increase of the investment budget on environment protection is equally important as raising ecological awareness and bringing up a new generation in security and comfort of living according to the idea of sustainable growth. High level of ecological awareness adds dynamics to pro-ecological attitudes development.

According to Mieczysław Sawicki (1997 p. 86) the elements of pro-ecological attitude include:

- Children's sensitivity to elements and processes of nature
- Rational use of goods coming from natural environment
- Attempts to achieve positive relation to the environment
- Feeling responsible for the condition of natural environment
- Ability to react appropriately to the improper behaviour of other people towards nature"

Ecological education is a specific area of bringing up and educating younger students. Therefore it is important to create atti-

tudes and to educate children according to the rules of ecological education that should be treated as an important addition to the general didactic and educational rules {Frątczak and Frątczak 1992, pp. 14-15).

The first rule demands learning about the environment step by step. The first stage is the emotional one - the teacher should organise activities for children to let them learn about the beauty, richness and uniqueness of nature. In the second phase - the cognitive phase the teacher's task is to develop a child's curiosity encouraging the pupil to be active. In the third phase - the economic phase - the child learns how to benefit from nature without inflicting harm to the natural environment, how to preserve natural resources and to help nature to survive and get stronger by multiplying natural resources. The second rule expresses the conviction that children need to have a direct contact with nature in its animated and non-animated forms because such a direct contact is best suited for the youngest children's education. The third rule demands such ways of organising children's contact with nature so that every child can contemplate nature's beauty as well as perceive and value its diversity. Thanks to such an approach children can develop deep feelings of joy and comfort flowing from the presence of nature - it can in turn strengthen their positive attitude towards nature and ecology. The fourth rule relates not only to the students but also to their close social circle. It is called the rule of inverted education function. The children share the knowledge, abilities, attitudes and experiences gained in the course of their educational process with people in their close social sphere. The fifth rule involves ecological utilitarian egocentrism that enables children to learn in practice about the meaning of nature in human life. They learn that through play, experience, observation, and work. Children are also taught how to responsibly use natural and environmental resources. The sixth rule concentrates on the economic use of natural and environ-

mental resources, the appropriate waste management and curbing the production of waste. The last, seventh rule is called positive interpersonal cooperation and concentrates on the necessity of cooperation between the individuals and various institutions to protect the natural environment. It is not limited to the exchange of personal knowledge and experience of students and teachers but also broader cooperation of schools, local authorities and self-government bodies and other institutions that may influence the condition of the natural environment and education for preservation of nature. (Frątczak and Frątczak 1992: 14-15). Acting according to the presented rules is a guarantee of high quality and effective ecological education of the youngest children.

Parlak and Hłobił's (2016, pp. 87-94) research delves into the crucial realm of ecological awareness among primary school students and their parents. The study underscores the significance of integrating ecological education into school curricula and fostering a deep respect for nature from an early age. The study emphasises the pivotal role of both teachers and parents in instilling environmental consciousness in children.

The findings of the research reveal that while third-grade students exhibit a commendable level of ecological knowledge, particularly in areas like waste segregation and local plant protection, they often struggle with more complex environmental concepts such as pollution and preservation. Conversely, adults, including parents, demonstrate a lower level of ecological awareness, often prioritising economic interests over environmental concerns. Discrepancies between children and adults highlight the influence of educational environments on children's understanding of ecological issues. Moreover, recent environmental crises have spurred increased awareness among adults, prompting changes in household practices and a growing interest in renewable energy sources. However, gaps in knowledge persist among adults, particularly regard-

ing the causes of water and soil pollution. While many recognize anthropogenic factors contributing to pollution, such as industrial activities and vehicle emissions, there remains a lack of awareness regarding natural pollutants and their sources.

The importance of comprehensive ecological education in fostering environmental responsibility among children and adults alike were mentioned as pressing issues (Parlak and Hłobił, 2016, pp. 87-94). The research calls for continued efforts to enhance ecological literacy through both formal education and broader societal initiatives. Overall, the study suggests a positive trajectory in Polish society's ecological awareness, driven by a combination of educational endeavours, environmental events, and individual actions.

There are new and important ecological trends in Poland that could not be observed on the basis of research performed before 2022. The war in Ukraine and resulting energy crises and short supply of Russian and Ukraine produced fossil fuels as well as the resulting sharp increase in the energy prices produced probably permanent impact on the general public ecological awareness in Poland. The parents of early school children like all the other segments of Polish adult society realised in the past year that it is absolutely necessary to reduce the cost of electric energy and heat energy used at home and also at their workplace and that it is vital to Polish economy and to the environment endangered not only by the exploitation but also by the crises. The extreme water pollution of Odra river caused a natural disaster and raised the awareness of people living in the area and benefiting from the tourist opportunities as well as those working in the tourism oriented services. The causes of pollution are related to the mining in Silesia and to the exploitation of fossil fuels. It became known recently that the other remaining Polish river, Vistula, is equally badly polluted due to the mining activities. It all became the centre of political discussion and therefore the awareness of society rose to an unprecedented level.

At the same time many people have decided to change their home heating systems, to produce their own energy from solar panels or other renewable sources. The impact on adults resulted in a growing level of awareness of children who now can learn awareness of children who now can learn about the necessity of protecting the environment and using the renewable sources of energy not only at school but also at home as well as from the very active media and social media. The number of ecological awareness programs reaching schools and neighbourhoods is growing constantly. Therefore it is not only the effectiveness of the National Core Curriculum and its successful implementation, yet also the result of the individual efforts of teachers and activists that contribute to the growing level of ecological knowledge and awareness among Polish early school students.

Poland's initiatives and practices for better Education for Sustainable Development

To support the curriculum, there are several examples of good practices in Poland that focus on sustainability and recycling education for grades 1-3 primary school. These practices include:

Eco-Schools Program

There are various environmental education programs and initiatives that aim to educate students on environmental issues, such as the Eco-Schools Program, which focuses on waste management, energy conservation, and sustainable transportation. The Eco-Schools

Program is a global initiative that aims to promote sustainable development and environmental education in schools. The program is designed to be student-led, with students taking an active role in identifying environmental issues in their school and developing and implementing solutions to address them. The program is structured around a seven-step framework, which includes establishing an eco-committee, conducting an environmental review, developing an action plan, monitoring and evaluating progress, and celebrating success.

The Eco-Schools Seven Steps Framework diagram

Field trips and outdoor activities

Field trips and outdoor activities are an important part of environmental education in Poland. Students have the opportunity to learn about the natural environment and engage in activities that promote sustainable behaviour, such as planting trees, other plants, creating community/school gardens or cleaning up the local parks, forests, beaches or mountain areas. Field trips and outdoor activities provide students with an opportunity to learn about environmental issues in a hands-on and interactive way. They also help to develop a sense of connection and responsibility for the neighbouring areas and to perceive them as a part of the natural environment. For example, students may visit a local nature reserve or national park, where they can learn about different ecosystems and the importance of protecting them for us and for the future generations.

Classroom activities and educational projects

Teachers incorporate various classroom activities to promote sustainability and recycling education, such as sorting and recycling waste, creating compost, and reducing energy consumption. These activities help students develop practical skills related to sustainability and recycling, and also help to reinforce the concepts covered in the National Curriculum. Classroom activities also provide an opportunity for students to work collaboratively and develop social and emotional skills in relation to the natural environment. For example, students may work in teams to design and implement an environment protecting or recycling program in their own school or community. This helps to develop communication, problem-solving, and leadership skills.

Here are some examples of specific educational projects that promote ecology, environmental protection, the circular economy and upcycling, aimed at pupils in grades 1-3.

Each of these projects can serve as inspiration for teachers and educators who want to incorporate elements of ecological education into their curricula. Many of these initiatives also offer educational materials that can be downloaded and used in the classroom.

„Trash for Art" Project

Initiator: PlasticsEurope Foundation

Concept: The „Trash for Art" project focuses on educating children about recycling and upcycling through art. Students create artworks from waste materials such as plastic bottles, cartons, old clothes, and other materials that would normally be discarded. This project aims to show children that valuable items can be created from waste, while also fostering their creativity and environmental awareness.

Innovation: By transforming waste into art, children learn how to reduce waste and contribute to environmental protection. The program often culminates in an exhibition of the children's work, which further motivates their involvement.

„Green School" Program

Initiator: Polish Ecological Club

Concept: The „Green School" program is a series of educational activities conducted in nature, aimed at teaching children respect for the natural environment and basic ecological principles. Students participate in activities in forests, national parks, or botanical gardens, where they learn about biodiversity, the water cycle in nature, and zero waste principles.

Innovation: Children learn in a natural environment, which helps them better understand and appreciate the nature around them. The program also introduces elements of a circular economy through recycling and composting activities.

„EcoExperimentarium" Project

Initiator: Aeris Futuro Foundation

Concept: „EcoExperimentarium" is an interactive educational project that takes children into a virtual world where they can learn ecological principles through play and experiments. Students solve puzzles related to waste segregation, energy and water conservation, and learn how to turn waste into something useful (upcycling).

Innovation: The project combines modern technology with ecological education, making learning more engaging and accessible for younger students. Virtual experiments allow children to apply their knowledge in a safe, controlled environment.

„Circular Design in School" Project

Initiator: Center for Citizenship Education (CEO)

Concept: This project introduces the concept of a circular economy into school curricula through practical activities. As part of project classes, students create everyday items from recycled materials and learn how to design products so that they can be easily repaired, reused, or recycled.

Innovation: The project promotes design thinking in the context of sustainable development, teaching children the basics of a circular economy in a practical way. Children not only learn about ecological principles but also develop their technical and manual skills.

„Earth Worth Its Weight in Gold" Project

Initiator: Foundation for Environmental Education

Concept: The project aims to educate children about responsible management of natural resources through practical classes and workshops. Students learn how to save water, and energy, how to properly segregate waste, and how to use waste materials to create new products.

Innovation: „Earth Worth Its Weight in Gold" combines elements of science with play and practical activities, making it easier for children to absorb knowledge and stay engaged. The project also organizes competitions for the best upcycling ideas, further motivating children to think creatively.

„GratoSfera Project"[25]

Initiator: Kamil Maciaszek - GratoSfera Foundation

Concept: The GratoSfera Project is GratoSfera Foundation's main project – it envisages introducing free play with loose parts to schools. It assumes placing in the green area of a school a container with loose parts, which will allow all participants to spread the wings of imagination. It contains "loose parts", i.e. natural or synthetic found, bought, or upcycled materials, hardware, stones, aluminium foil, fabric scraps, for example-that children can move, manipulate, control, and change within their play. The GratoSfera project is the result of Kamil Maciaszek's work on another Eramus+ project, CAPS - Children Access to Play in Schools.

25

Innovation: GratoSfera Project This project combines the reuse of materials known in everyday life, so-called loose parts, giving them a second life while the children play. In this way, children learn that recycled life/upcycling is a valuable component of conserving our resources, while at the same time, in play, they acquire valuable key competences including social competences such as problem solving, negotiation, navigating configuration, resification, collaboration, critical thinking and many more.

GratoSfera Project attracted attention of stakeholders and politicians in Gdańsk as they decided to introduce it to schools as one of the post-pandemic priorities. The City Council and The Department of Social Development of Gdańsk strongly support the idea of GratoSfera as they see the need to introduce more outdoor and creative activities into school curriculum. With the explicit agreement of the Mayor of Gdańsk, at least 50 percent of Gdańsk's primary schools will be equipped withGratoSfera. Reaching around 60 primary schools in Gdańsk GratoSfera Foundation makes it a perfect platform to disseminate the new projects.

GratoSfera Foundation cooperates with more than 33 primary schools all over Poland, reaching out to more than 15.000 students, and by the way, parents, directors, educational and government authorities. The cooperation with schools in many cities begins with establishing a relationship with the local administrative authorities, who cover the institution with substantive and financial support, which makes the schools that are part of the GratoSfera project less likely to fail. The institutions taking part in the GratoSfera project are highly oriented towards innovation.

GratoSfera in Kindergarten no.3, Gdańsk/Poland

GratoSfera in Primary School no.89, Gdańsk/Poland

Educational materials (in Polish)

Educational materials, such as leaflets, booklets, books, videos, and games are provided by various NGOs as well as by schools and educational bodies on all levels. Below is a list of resources from the official government website on environmental education in primary schools. It includes theoretical information, as well as practical elements and a set of tips on how to disseminate knowledge further:

- Environmental education information from the government (in Polish)

- "Szkoła z klimatem" (eng. School with (for) climate) project

The project received funding in the call for proposals: Awareness raising activities on climate change mitigation and adaptation by schools under the Environment, Energy and Climate Change Programme, in the area of Climate Change Mitigation and Exposure Reduction. It is funded 100 % by the Environment, Energy and Climate Change Programme from the European Economic Area Financial Mechanism (of which 85 % comes from the EEA Financial Mechanism and 15 % from the state budget). Twenty schools in Radzyń County and schools for which the applicant is the managing authority will be covered by the project.

The aim of the project is to promote pro-environmental behaviour among children and young people and the local community of Radzyń Podlaski municipality in terms of climate change knowledge. In addition to educational (workshops and lessons) and promotional activities, the School with Climate project envisages a number of investment activities in the field of climate change adaptation and mitigation. These include the creation of

small retention reservoirs, a rain garden and a pocket park, as well as eco-education areas.

Information and educational material from the Gdansk programme “Klimat w szkołach metropolii” (eng. Climate in metropolitan areas schools) for climate change mitigation measures (in Polish)[26]

Website of the Polish Zero Waste Association, containing information on Zero Waste culture and educational materials. The Polish Zero Waste Association works to change social awareness of resources, preventing waste at source, promoting waste-free lifestyles and changing production and consumption patterns towards a closed loop economy. We pursue our mission by equipping citizens, institutions and businesses with knowledge and tools to support their actions and by representing communities committed to environmental action[27]

Handbook for schools on how to establish, maintain and make educational use of school gardens and green areas [28]

26 27 28

Eco-Initiatives and National Programs in Polish Primary Schools

In Polish primary schools there is a large number of ecology-related activities that teachers are executing with their students. Celebrating Earth Day by collecting rubbish in the woods, parks and beaches near the school. Planting trees by school children is another popular activity. Many schools collect plastic bottle caps and sell them to transfer money to charities that buy wheelchairs and other medical equipment. All that are widespread general activities practised by individual teachers or schools.

In Poland there are also national programmes that are usually designed by groups of teachers and scholars who are inspired by sustainable lifestyle. One of such a programmes is “Sustainable School” introduced by: Jadwiga Guzowska, Ewa Jagiełło, Beata Kawalec, Beata Kucharska, Aneta Paszkiewicz, Agnieszka Szumera, Maria Szymańska. It is designed specifically for the students of grades 1-3 of primary school. In the curriculum of “Sustainable School” authors decided to adapt Stanisław Dylak’s open curriculum definition as “the entire educational experiences designed for student and teacher, that led students to reach specific stages or allow the student to experience specific cognitive and emotional experiences”. Another national program is “#BeEco” created by two organisations: Digital University Foundation and Deloitte Foundation. Almost thirty-five thousand students from primary schools participated in the first Polish national edition of the program in school year 21/22. #BeEco expands awareness about ecological lifestyle by creating a series of online workshops for teachers. The workshops brought up the topics of:

- Waste separation
- Climate
- Most important ecological initiatives
- Closed loop economy
- Biodiversity
- Inspirational workshops run by Warsaw University of Life Sciences (SGGW) students

After the workshops teachers were granted learning scenarios prepared by Deloitte experts. Another initiative from #BeEco is #BeEco competition for primary school children. There are 3 different age groups. One of the three groups is dedicated for children from 1 to 3 grades. The contest is based on the online quiz. The questions are designed for specific age groups' knowledge and abilities. Students also had a chance to participate in another competition. The contestants were supposed to create a short film promoting ecological attitudes and lifestyle. Polish national #BeEco program was awarded in the international competition Global Impact Award 2022 organised by one of the largest educational think-tanks Singularity Group.[29]

In Poland there are also many small projects run by individual teachers. Good example is the project "Ecological School" which in the previous year was joined by 325 people. In many schools teachers run individual programs just for 10-15 children. Activities in such small groups may include trips to Natural Reserves, obser-

29

vations of birds, animals or rare plants. Children may be invited into larger national or international projects like bird counting and bird ringing.

The Hungarian Curriculum

The Hungarian National Curriculum is based on the principle of holistic learning, which focuses on the development of the whole child, including their physical, emotional, social, and intellectual aspects. The curriculum is designed to promote the development of key competencies, including environmental education, which are necessary for life in the 21st century. It provides a framework for teachers to integrate environmental education into their daily lessons. Environmental education and sustainability have become increasingly important in Hungary due to global environmental concerns and the curriculum is based on a thematic approach, where topics are integrated into broader themes that are relevant to children's lives.

The Hungarian National Core Curriculum, particularly in the context of sustainability and recycling, provides a comprehensive framework for promoting environmental consciousness and responsible waste management within the education system. It emphasises the importance of sustainable development and environmental education as essential components of primary educa-

tion. It aims to cultivate students' knowledge, attitudes, and skills necessary for sustainable living and responsible stewardship of natural resources.

One of the central objectives of the curriculum is to raise students' awareness of environmental issues, including the importance of sustainability and recycling. It emphasises the need for students to understand the environmental, economic, and social implications of their actions and encourages them to adopt responsible behaviours and practices. The curriculum recognizes the significance of waste management and recycling in preserving natural resources, reducing pollution, and mitigating the negative impacts of waste on the environment. It promotes an understanding of the concept of recycling, including its principles, benefits, and various recycling methods.

The curriculum also emphasises the importance of hands-on activities and projects to engage students actively in sustainable practices. It encourages schools to establish recycling initiatives and waste reduction programs, allowing students to actively participate in sorting and recycling waste materials. These initiatives aim to instil lifelong habits of waste reduction, reuse, and recycling among students.

To support the implementation of sustainability and recycling education, the curriculum recommends collaboration among schools, local communities, and relevant stakeholders. This collaboration can involve partnerships with recycling centres, waste management organisations, and environmental NGOs, fostering a broader understanding of waste management practices beyond the school environment.

Another example is through project-based learning. Teachers can create projects that allow children to investigate environmental issues, such as pollution, waste reduction, and energy conservation. Through project-based learning, children can

develop problem-solving skills and learn to think critically about environmental issues. Unfortunately project-based learning is not common in Hungary, usually alternative / private schools use this methodology.

Assessment and evaluation are essential components of the curriculum, ensuring that students' progress in understanding and applying sustainability and recycling principles is effectively monitored. Assessment methods may include project-based assessments, presentations, research assignments, and practical demonstrations of waste reduction and recycling initiatives.

Professional development opportunities for teachers are also highlighted within the curriculum, acknowledging the need to equip educators with the knowledge and skills necessary to effectively deliver sustainability and recycling education. These professional development initiatives aim to enhance teachers' pedagogical approaches and deepen their understanding of sustainability concepts, enabling them to engage students more effectively in environmental education.'

A recent Hungarian study shows that according to the responses received, 91% of teachers use the internet as a teaching tool most of the time, and fortunately few schools are missing the internet these days (Kiszely, 2021). According to teachers, the most lacking tools for teaching are visual aids and computer programmes (this shows in the orange block: „hiányolt segédeszközök" - missing visual aids, green for computer programmes).

The Hungarian National Core Curriculum for grades 1-3 in primary schools incorporates sustainability and recycling education to promote environmental awareness and responsible waste management among young students. The following points are key aspects and relevant data from the curriculum. (National Core Curriculum of Hungary for Primary Education, 2020).

- Environmental Awareness: The curriculum aims to develop students' environmental consciousness and understanding of sustainability principles at an early stage

- Waste Management and Recycling: a. Students learn about the importance of waste reduction, reuse, and recycling to preserve natural resources

- Cross-Curricular Approach: a. Sustainability and recycling concepts are integrated into various subjects, such as science, geography, citizenship education, and technology, to provide a holistic understanding

- Practical Activities: a. Students engage in hands-on activities and projects related to sustainability and recycling, reinforcing their knowledge and skills

- Local Community Engagement: a. Collaboration between schools, local communities, and relevant stakeholders is encouraged to enhance students' understanding of waste management beyond the school environment

- Assessment and Evaluation: a. Students' progress in understanding and applying sustainability and recycling principles is assessed through various methods, including project-based assessments, presentations, and practical demonstrations

- Professional Development for Teachers:
  a. Teachers are provided with professional development opportunities to enhance their pedagogical approaches and deepen their understanding of sustainability concepts

For 3-4 graders the main subject to encounter sustainability issues in school is Environmental studies. This is an introductory subject in the Science and Geography curriculum area.

The subject builds on the development of reading in grades 1-2, as well as technology and mathematics. The main aim of the subject is to build on children's age-specific learning, cognitive development and curiosity to enable them to learn about their immediate and wider environment and their own bodies, to understand change and to see basic cause and effect relationships. Through activities based on methods of acquiring and processing scientific knowledge, pupils gain experience through action and actively participate in the process of development. Through the acquisition and application of the methods of cognition (observation, description, comparison, grouping, measurement and experimentation), they develop the basic skills (observation, description, identification, discrimination, measurement techniques, experimentation) and habits necessary for scientific cognition.

For primary school grades 3-4 Environmental studies develop the key competences set out in the National Curriculum in the following ways:

- Learning competences: by following the algorithm of observations, making comparisons, grouping, and implementing the algorithm of measurement and experimentation, the learner is actively learning and developing their cognitive skills. They compare the results of his investigations with their hypotheses, thus developing their problem-solving and reflective thinking. They use learning strategies: they use simple diagrams and graphic organisers to record his experiences.

- Communication competences: in cognitive activities, the learner writes down or orally articulates their experiences, thus develop-

ing their ability to express their ideas clearly and precisely. In doing so, they strive to use scientific language accurately. Collects and organises information when carrying out investigations. Observation, comparison, grouping, measurement and experimentation develop the ability to understand information presented in text, tables and graphs.

- Digital competences. In learning about the environment, learners gather additional information from digital sources and use online exercises and applications to record their experiential knowledge.

- Mathematical and thinking competences: learners develop their problem-solving skills through the acquisition of knowledge through the use of online learning tools and the use of online resources. By conducting investigations and experiments, the learner is encouraged to ask questions, to find cause and effect relationships and to draw conclusions. As skills are developed through the complex processing of each topic, a systems thinking is developed. In addition to initial perceptual learning, it develops the ability to learn verbally.

- Personal and interpersonal competencies:
  learning about the environment is based on an active experience of being part of a group, working with peers. In the course of practical tasks, the group works as a team, making decisions and planning time.

- Competences of creativity, creative work, self-expression and cultural awareness: in the course of learning about the environment, pupils learn about elements of the cultural heritage of their country.

- Employability, innovation and entrepreneurship competences: through the activities undertaken in the learning of environmental studies, the learner will be able to work in cooperation with peers. By working with peers, learners learn to work with their peers in different roles within the group and to take responsibility for their work.

It is of particular importance that children gain, through their own experiences, scientific knowledge that helps them to navigate the natural, social and economic environment around them and to live in harmony with their environment. The learning of this subject can therefore foster an interest in the environment and a sense of responsibility. Recognition of the link between health and the components of a healthy lifestyle, the development of healthy lifestyle habits and education in the conscious avoidance of health-damaging influences are fundamental to the aims of the subject. It follows from the aims of the subject that it is inevitably linked to everyday life and is therefore highly practice-oriented. It does not teach children knowledge, but prepares them for conceptualisation through the experience of their own activities. The experiences gained through the activities ensure the joy of learning and discovery, thus contributing to the pupils' motivation to develop a deeper knowledge and understanding of the problems of science and geography. In doing so, pupils acquire a foundation of scientific literacy that is accessible and applicable to all.

According to a survey conducted by the Hungarian Ministry of Education, 75% of elementary schools in Hungary have implemented sustainable teaching practices in their curriculum. For example, in the city of Pécs, the „Green City" program was launched to educate elementary school students about sustainable urban development and environmental protection. The program includes workshops, field trips, and project-based learning

activities that allow students to actively engage in environmental issues.

Environmental education in schools can take place within the framework of a subject, and we can also talk about extra-curricular environmental education. Many good ideas and programmes have emerged in the last 20 years in the field of the development tasks of the National Curriculum and environmental education outside the classroom, but they have not been widely integrated into the everyday life of public education, as the traditions of the education system and parents' expectations still preserve knowledge-based education. Public educational institutions transmit a dissonant and incoherent view of existence and the world that does not support harmony and change in human nature. In general, there is the extreme impossibility of pedagogical work by the maintainers, overworked teachers, overburdened heads of institutions, excessive class sizes, lack of managerial and professional autonomy, and one-sided, anarchic structures and concepts, inconsistent expectations, and meaninglessly overloaded curricula. Often, the underlying motivation for pedagogical and institutional work is the need to achieve, the underlying mood of ‚must'. Most of all, public education is based on a need to perform. This has the following psychological content and effects: not intrinsically motivated; not self-identical; not acting for its own sake; not qualitative; consequence: a performance-oriented approach to learning about the world. It diminishes and ultimately suppresses the need to know the world and with it the respect for nature and the motivation to protect it. (Kotogan, 2020)

In a survey, Hungarian primary school teachers were asked to indicate the type of school they were associated with, considering the various institutional options available in Hungary: 80% of the schools were operated by the state, 15% were affiliated with religious organisations, and the remaining 5% were

foundation schools. Notably, 37% of the respondents identified themselves as teachers in eco-schools. Moreover, a significant majority (78%) of the participants believed that their respective subjects were closely intertwined with environmental education (Kiszely, 2021).

Following the general inquiries, the respondents were asked to rate the significance of environmental education in public schooling on a scale of 1 to 5, with 1 indicating minimal importance and 5 denoting utmost importance. The data revealed that a considerable 90% of the respondents assigned a rating of 3 or higher, signifying the substantial importance attributed to environmental education (as illustrated in the chart below). Moreover, when assessing its prominence in local curricula, a majority of the participants assigned a rating of 4 (as depicted in the chart below). These findings indicate that environmental education is appropriately incorporated and emphasised in the educational guidelines and policies governing the curriculum (Kiszely, 2021).

In conclusion, the Hungarian National Core Curriculum underscores the significance of sustainability and recycling education as integral components of primary education. By focusing on raising students' environmental awareness, developing practical skills, and fostering responsible behaviours, the curriculum strives to empower the younger generation to become active contributors to a sustainable future. Through its interdisciplinary approach, hands-on activities, and collaboration with relevant stakeholders, the curriculum seeks to cultivate environmentally conscious citizens who understand the importance of recycling and waste management in preserving the environment and its resources.

Hungary's initiatives and practices for better Education for Sustainable Development

Eco-Schools Program[30]

One of the most significant initiatives in Hungary that promotes environmental education is the Eco-Schools program. The Eco-Schools program is an international program that was established in Hungary in 2001 by the Foundation for Environmental Education (FEE). The program aims to promote sustainable development and environmental education in primary and secondary schools. The program has several objectives, including reducing the environmental impact of schools, promoting sustainable lifestyles, and improving the school's environmental management.

The Eco-Schools program provides a framework for schools to implement environmental education in their teaching practice.

30

Schools that participate in the Eco-Schools program receive a toolkit that contains educational resources, lesson plans, and guidance on how to implement the program. The program also provides training for teachers, which enables them to deliver effective environmental education.

Participation in the Eco-Schools program has been shown to have a positive impact on primary school teaching practice. According to a study conducted by the Hungarian Ministry of Education, participation in the Eco-Schools program has led to increased awareness of environmental issues among students and improved environmental management in schools. The study also found that the program has had a positive impact on students' academic achievement, with students who participated in the program showing improved performance in subjects such as science and geography.

The eco-school network is a large-scale initiative that encourages schools to provide a systematic space for environmental education. Out-of-school places are also important venues for environmental education, and their potential has been developing in recent years. Youth organisations active in environmental and nature conservation (e.g. Green Heart), social organisations (e.g. the Hungarian Ornithological and Nature Conservation Society), tourist and sports associations (e.g. the Hungarian Nature Walking Association) play an important role in environmental education through their programmes. In addition to social organisations, national park authorities, zoos, museums, public authorities (e.g. municipalities) and businesses can also support environmental education through a wide range of activities. Among the opportunities offered by these organisations, the use of demonstration sites, educational centres, nature trails, participation in forest school programmes, exhibitions, workshops, competitions and action programmes are some of the most important. And there are more and more certified forest schools across the country to welcome students for field research.

Green City Program[31]

Another initiative that promotes environmental education in primary school teaching practice is the Green City program. The Green City program was launched in the city of Pécs in 2010 and aims to educate primary school students about sustainable urban development and environmental protection. The program includes workshops, field trips, and project-based learning activities that allow students to actively engage in environmental issues.

The Green City program has had a positive impact on primary school teaching practice in Pécs. According to a study conducted by the University of Pécs, the program has led to increased awareness of environmental issues among students and improved attitudes towards environmental protection. The study also found that the program has had a positive impact on students' academic achievement, with students who participated in the program showing improved performance in subjects such as science and geography.

In Hungary, various educational initiatives focused on promoting sustainability and environmental awareness are implemented across different educational levels, ranging from kindergarten to secondary school. These include initiatives such as the Green Kindergarten system, Eco-schools, Forest Schools, and Forest Kindergartens. While the integration of sustainable development (SD) themes into relevant subjects and programs is common in public primary and secondary education, higher education institutions tend to offer more specific programs and courses dedicated to SD.

31

Education for Sustainable Development in Hungary

Universities in Hungary offer a range of courses related to SD, such as environmental science, environmental studies, environmental-economic studies, and environment and society studies. Teacher education and in-service teacher training also incorporate competencies in education for sustainable development (ESD), which are outlined in the minimum professional competences list for formal education teachers.

To guide ESD policies, Hungary utilises the revised National Environmental Education Strategy, a policy document that was collaboratively developed by 200 civil organisations. This strategy has been expanded to encompass various ESD themes.

Several initiatives aimed at raising awareness and building capacities in areas such as energy conservation, waste reduction and recycling, sustainable consumption, and promoting a healthy lifestyle, receive funding from diverse sources including EU funds, Hungarian governmental funds, the Norwegian Fund, as well as initiatives by businesses and non-governmental organisations (NGOs).

Green School Program

The Hungarian Society for Environmental Education (KÖME) is an organisation that promotes environmental education in primary school teaching practice. KÖME is a non-governmental organisation and has developed several programs that promote environmental education in primary schools, including the „Green School" program. The Green School program aims to promote sustainable development in schools and encourages schools to adopt sustainable practices. Schools that participate in the program receive a toolkit that contains educational resources, lesson plans, and guidance on how to implement the program.

Traditional State Schools are trying hard to cope with operating understaffed with multiple overwork hours. There are numerous great examples though on an individual level, on good teacher practices. Several schools specialise in environmental studies eg. Biasuli and Herceghalmi Általános Iskola.

Alternative Schools and Approaches

Although alternative schools provide excellent examples of Education for Sustainable Development (ESD) due to their flexible curricula and innovative teaching methods, it is crucial to acknowledge that these schools are not accessible to all segments of society. The tuition fees associated with alternative schools often limit access, making them less socially sustainable, as they do not promote equal access, social justice, or inclusion.

Alternative schools share many common characteristics, as most were founded on humanistic principles that emphasise peace, freedom, and holistic development. These schools aim to create an environment where children can explore, relax, engage in sports, and play games, often integrating students with special needs. The educational approach in these schools emphasises the development of social skills through various activities, such as debates, team-building games, discussions, non-violent communication, conflict resolution, and collaborative learning environments like sitting in circles.

In these schools, cooperation is valued over competition, fostering a collaborative atmosphere among students. There is a strong emphasis on a balanced approach that integrates both cognitive and emotional learning, shifting the focus from solely outcomes to progress and valuing the learning journey as much as the results. Comprehensive and nuanced assessment methods are utilised, including oral and written evaluations, with feedback that addresses both academic and social aspects of student development.

Interactivity and creativity are central to the learning process in alternative schools, allowing students to engage deeply with the material. The curriculum often includes integrated subjects that cover diverse and interconnected topics, ensuring a broad and intercon-

nected understanding of the world. Educators build upon students' existing activities, interests, and ideas to enhance engagement and motivation, adopting a holistic approach that includes projects, thematic days, and research activities.

The importance of art is recognized in these schools, with creative expression integrated into the curriculum. A wide range of learning materials is provided, offering students ample choices and encouraging autonomy in their learning. Skill development is prioritised, focusing on practical abilities as well as theoretical knowledge. Environmental studies play a significant role, with an emphasis on ecological concepts, organising eco-days, conducting field trips, and engaging in outdoor activities. Students are also encouraged to participate in numerous projects that address environmentally friendly and sustainable practices.

Examples of primary schools that embody these practices include Rogers Kindergarten and Primary School, Kincskereső, Real School, and DAM School. In non-school settings in Hungary, such as Malom-Alom for grades 1-4, similar educational philosophies are observed. Educators in these environments act as school creators, fostering a learning atmosphere that encourages exploration and growth. There is active involvement and engagement of parents in the educational process, creating a strong sense of community around the students.

Teachers in these settings often receive training in social and emotional skills, with many acquiring expertise in mental hygiene. The educational approach emphasises a partnership mentality, where all stakeholders, including educators, parents, and students, work together collaboratively. A non-violent attitude is promoted, ensuring a safe and respectful learning environment. Facilitation and support take precedence over traditional teaching methods, empowering students to take charge of their own learning journeys.

Summary: Finland, Poland, and Hungary

In Finland, Poland, and Hungary, mainstream education systems have made significant strides in integrating sustainability into their curricula, ensuring that ESD is accessible to a broader population. Each of these countries has developed unique approaches to promoting environmental awareness and sustainable practices among students.

Poland and Hungary follow centralised curricula, where the foundation for school instruction is determined nationally. In contrast, Finland adopts a more flexible approach, granting schools greater autonomy in crafting their curricula. In Hungary, a national core curriculum outlines the values, knowledge, and learning objectives for compulsory education, while both Poland and Finland rely on national frameworks and guidelines. However, the emphasis on sustainability differs among these countries; while sustainability receives limited focus in the curricula of Poland and Hungary, Finland positions it as a key transversal competence, integrated across all fields of study.

The extent and depth of emphasis on sustainability vary among the three countries. While all recognize the need for an interdis-

ciplinary approach to effectively address sustainability challenges, Finland leads the way with significant curriculum reforms that embed sustainability in an integrated manner. The Finnish curriculum is particularly advanced in its use of phenomenon-based learning to incorporate sustainability issues. This progressive approach, including a notable emphasis on outdoor education, serves as a potential model for Hungarian and Polish educators.

Finland

Finland follows the National Core Curriculum for Basic Education, which was published in 2014. ESD is considered the quintessential component of the curriculum at all levels of education in Finland. The vision for education for sustainable development is that sustainability should be integrated in curricula at all levels and in every subject (Ministry of Education, 2007). Sustainability is one of the seven transversal key competences that the Finnish national core curriculum for basic education is based on. In particular, One of the missions of basic education is to promote participation in a sustainable way of living and growth as a member of a democratic society. Basic education educates the pupils to know, respect and defend human rights.

The Finnish National Core Curriculum outlines several educational objectives aimed at enhancing students' sustainability skills, which are achieved through various means in Finnish schools. Finnish schools prioritise waste reduction and the preservation of natural resources. The school demonstrates its responsible attitude towards the environment by its everyday choices and activities. Sustainable materials are chosen, and the role that immaterial factors play is highlighted, and time is set aside and visibility is given for these factors in everyday school work. The pupils are involved in planning and implementing sustainable everyday life.

The Finnish Ministry of Education recognizes the importance of sustainable development and considers education as a key instrument for change in achieving the United Nations Agenda 2030 for Sustainable Development. However, despite the emphasis on sustainability in the 2014 Finnish national core curriculum for basic education, there is a lack of concrete actions in Finnish schools. The Finnish National Agency for Education stresses the importance of

education in achieving a sustainable future, enablers of sustainable development in schools and learning environments, while highlighting the need to pay special attention to developing educational models for better equity and inclusivity, based on the significant differences in sustainability-related perceptions between different groups of students. Finnish schools also face the challenges of the freedom that the curriculum gives to teachers to implement it in a way of their own choosing. Other challenges include stressing the importance of critical thinking, while tackling the challenge of bringing the seriousness of environmental issues into the students' knowledge without causing stress and anxiety about sustainability.

To achieve the goals of sustainability, competence building, empowerment, and awareness-raising are viewed as key strategies. Responsibility and active citizenship are emphasised as focal points. Democracy is considered an essential prerequisite for sustainable development. However, it is important to recognize that values, ethics, and the conceptual nderstanding of sustainable development vary depending on the context. Therefore, we should allow for various approaches and solutions (Ministry of Education, 2007).

Finnish schools have various good practices to enhance students' sustainability skills, including: environmental education, project-based learning, experiential learning, student-led initiatives, waste separation, composting, energy-efficient practices, and green transportation. To support positive change, Finland also has various initiatives for sustainability, including Finland's future fund Sitra's circular economy project, the Green Flag program, sustainability exhibitions at art museums, as well as video series on ESD and phenomenon-based learning.

Poland

In Poland, the ideas for environment protection, sustainability and recycling in education are included in the educational process and based on the National Curriculum Framework, which emphasises the importance of environmental education and the concept of environmental protection as well as to foster their interest and awareness of sustainability and recycling from an early age. The curriculum for grades 1-3 primary school covers a range of topics related to sustainability and recycling, including the natural environment, natural resources, waste management, and renewable energy sources. The curriculum is designed to be age-appropriate and engaging, with a focus on hands-on learning and practical activities that help students develop a deeper understanding of environmental issues. The National Core Curriculum recommends the organisation of activities allowing the perception of the natural environment and its exploration, learning about the values and interconnections of the components of the natural environment, learning about the values and norms that are the source of a healthy ecosystem, and behaviours resulting from these values, as well as discovering by the children themselves as the important integral subjects of this environment. Students gain knowledge about national parks, natural monuments in the region, while highlighting the importance of waste separation. Students are expected to learn about the impact of human activities on the natural environment. They learn about the importance of natural resources, the water cycle, and how to care for the environment.

The National Core Curriculum is not fully responding to the recent documents adopted by Poland in the National Environmental Policy, and this raises concern with many researchers. Poland as a member of the EU is obliged to implement the changes of the Eu-

ropean Green Deal directive to its Core Curriculum but it has not happened yet. The National Environmental Policy 2030 specifies and operationalises the provisions of the Strategy for Reasonable Development until 2020 (with an Outlook until 2030). Its aim is to ensure Poland's environmental safety and a high quality of life for all its citizens.

The findings of research (Parlak and Hłobił, 2016) reveal that while third-grade students exhibit a commendable level of ecological knowledge, particularly in areas like waste segregation and local plant protection, they often struggle with more complex environmental concepts such as pollution and preservation. Conversely, adults, including parents, demonstrate a lower level of ecological awareness, often prioritising economic interests over environmental concerns. Overall, the study suggests a positive trajectory in Polish society's ecological awareness, driven by a combination of educational endeavours, environmental events, and individual actions.

Although the Polish Core Curriculum doesn't mention the concept of recycling, in the majority of Polish schools teachers and students actively engage in recycling practices. Many schools carry out „bike to school" campaigns to raise awareness of air pollution from traffic and organise campaigns to collect recyclables: waste paper, plastic, batteries, etc. Teachers explain the importance of recycling and implement good practices related to it. In many cases the teachers are creating their own programs and practices that include working together with local NGOs and pro-ecological activists. The trips to the local natural reserves, national parks and natural forests are very popular and quite often they go beyond the curriculum. Recent crises such as the Russia-Ukraine war and the extreme water pollution of the Odra and Vistula rivers have also heightened the environmental awareness of students and parents at home and in social media in recent years.

Several good practices to support the curriculum in Poland include the Eco-Schools Program, field trips and outdoor activities and camps, eco-initiatives and national programs, governmental resources about sustainability education for educators, as well as educational projects and classroom activities that promote ecology, environmental protection, the circular economy and upcycling. Thanks to EU funds, EEA funds, private funds and crowdfunding, many ecological education campaigns have been carried out in schools in recent years and numerous environmental education materials have been developed, and many of these offer opportunities for children to learn through experience.

The number of ecological awareness programs reaching schools and neighbourhoods is growing constantly. Therefore it is not only the effectiveness of the National Core Curriculum and its successful implementation, yet also the result of the individual efforts of teachers and activists that contribute to the growing level of ecological knowledge and awareness among Polish early school students.

Hungary

The Hungarian National Curriculum is based on the principle of holistic learning, which focuses on the development of the whole child, including their physical, emotional, social, and intellectual aspects. The curriculum is designed to promote the development of key competencies, including environmental education, which are necessary for life in the 21st century. It provides a framework for teachers to integrate environmental education into their daily lessons. Environmental education and sustainability have become increasingly important in Hungary due to global environmental concerns and the curriculum is based on a thematic approach, where topics are integrated into broader themes that are relevant to children's lives. The curriculum emphasises the importance of sustainable development and environmental education as essential components of primary education. It aims to cultivate students' knowledge, attitudes, and skills necessary for sustainable living and responsible stewardship of natural resources. Key aspects of the curriculum include environmental awareness and recycling, the cross-curricular approach, the importance of hands-on activities, project-based learning, assessment and evaluation, local community engagement and teacher professional development.

Many Hungarian elementary schools have already implemented sustainable teaching practices and initiatives to promote environmental education through project-based learning, hands-on learning experiences, and thematic teaching, and it is important to continue to support and expand these efforts. Other good initiatives in Hungary include the Green City Program, the Eco-Schools Program, sustainable development courses at universities, the Green School Program by KÖME, as well as many alternative schools and approaches. Several initiatives aimed at raising awareness and

building capacities in areas such as energy conservation, waste reduction and recycling, sustainable consumption, and promoting a healthy lifestyle also receive funding from diverse sources including EU funds, Hungarian governmental funds, the Norwegian Fund, as well as initiatives by businesses and non-governmental organisations (NGOs).

Although many good ideas and programmes have emerged in the last 20 years in the field of the development tasks of the National Curriculum and environmental education outside the classroom, they have not been widely integrated into the everyday life of public education, as the traditions of the education system and parents' expectations still preserve knowledge-based education. Unfortunately, public educational institutions transmit a dissonant and incoherent view of existence and the world that does not support harmony and change in human nature.

SCRAPPIES project coordinator Kamil Maciaszek at a school visit

Recommendations for policymakers to help schools reach education goals for sustainable development

We have now had a look at the curricula and initiatives and best practices for ESD in three European countries. Herein we highlight potential improvements in each country's ESD efforts. It is essential for policymakers, educators, and stakeholders to work collaboratively to continually enhance the impact and effectiveness of ESD, ensuring that students and teachers alike are equipped with the knowledge, skills, and values needed to address the environmental challenges of the future.

Integration of ESD in National Curricula

Education for Sustainable Development (ESD) needs to be a core element of national curricula, recognizing the critical importance of addressing environmental and social issues within formal education. Interdisciplinary approach to ESD is necessary, acknowledging that environmental challenges intersect with various academic disciplines. Significant efforts should be made to train teachers in ESD methods, enabling them to effectively incorporate sustainability concepts into their teaching practices.

Teacher Training and Professional Development

Finland places a significant emphasis on the education and ongoing professional development of its teachers, requiring all educators to possess a master's degree and providing extensive opportunities for career-long learning. This focus on high-quality teacher training is reflected in Finland's consistently high rankings in international assessments of student achievement and well-being. In comparison, Poland and Hungary offer teacher training, but these programs may not be as comprehensive or highly regarded. Although Poland and Hungary have made improvements in recent years, they still lag behind Finland in various educational aspects.

In all three countries—Finland, Poland, and Hungary—school curricula include sustainability, but not all competencies are equally covered, and sustainability is not always fully integrated into teacher education and training regulations. Developing more comprehensive and widespread teacher training programs would ensure that educators are better equipped to integrate education for sustainable development (ESD) effectively. Emphasizing the practical application of sustainability concepts through hands-on projects and real-world problem-solving exercises should be a priority for the future.

Teacher training for Scrappies Project, Hungary 2023

Comprehensive, institutional and spatial support for teachers

In order to accomplish the Sustainable Development Goal 4, Education for All (United Nations, 2015), and to improve the ESD goal across the board, teachers need substantial institutional support to effectively integrate recycled materials and sustainability into their teaching. This support should come from schools and educational authorities and include at least:

- Ready-to-use resources aligned with the national curriculum to address time constraints and ensure effective implementation.
- Dedicated creative spaces for student projects and exhibitions.
- Collaboration with colleagues and the broader school community to gain support for unconventional educational methods.
- Assistance in collecting the scrap materials needed for the learning scenarios.
- Help in communicating the benefits of these methods to parents and involving them in collecting materials.

Teachers need comprehensive support to effectively utilise scrap materials in their classrooms. This support includes ready-to-use scripts for lessons, detailing which materials to use for specific purposes and providing guidance on quantities and considerations. Time constraints make it challenging for teachers to develop content, so having resources aligned with the national curriculum would be invaluable. In situations where schools cannot provide support,

Scrap creation in a primary school, Hungary 2023

teachers may need alternative sources for obtaining scrap materials. This could involve seeking assistance from external projects or initiatives dedicated to supporting educators in acquiring resources for innovative teaching methods. Addressing these barriers requires thoughtful planning, resource management, and support systems to enable the effective integration of scrap materials into classroom activities.

Unconventional forms of school work demand understanding from management and parents - that work without handbooks is also a work. Respect for more creative lessons with different ways of evaluation than tests, quizzes etc. It is very important how the schoolchildren's work is presented in order to stress its value and importance, especially since the material used also does not cause immediate respect. Therefore it is crucial to organise the exhibitions and presentations with utmost care.

Storage space is a significant concern, as the abundance of materials requires ample room and ongoing efforts to replenish supplies. With classes typically consisting of 25-30 students, ensuring equal access to materials presents another challenge, necessitating careful organisation. This leads to the topic of creative spaces which are a major concern. It is difficult to create and present objects in the same classroom that is being used by various teachers and classes. In many cases the rest of the school staff shows no understanding towards creative processes. Cleaning staff employees often think of artworks children created as rubbish that need to be thrown away. That it adds them extra work, or it's unnecessary. That can create conflicts between cleaning staff and teachers. Often students' works are simply mistaken for rubbish and end up in the trash can.

Another challenging barrier to cross is that classrooms are exchangeable. This means that in most cases students have approximately 45-90 minutes lessons in one classroom per day. And by that

time the classroom must be cleaned and ready for another group of students to start next lessons in comfortable conditions. It's simply not enough for teachers to conduct productive and extensive classes on a given subject. Participants also noticed the need for documentation because some of the materials are only temporary so it is important to make photos or videos in order to preserve memories from the event.

For bigger creation projects, it is therefore essential to have a dedicated space where children can create and leave their products to be presented afterwards as an exhibition. Presentation of the produced works of art should be located in the most prominent school room so as to stress the importance of presented objects. The idea of the exhibition should be clarified to the viewers. Teachers need respect from other teachers and recognition that also unconventional ways of education deserve full support. So it is crucial to discuss the project and its ideas with all the teachers and the entire school community. It might be the best way of gaining support and understanding. Teachers need support in convincing parents of students that more innovative ways of education also enable their children to gain valuable knowledge. It is important to persuade them that students are actually working hard and that those unconventional lessons help them to develop nicely. Teachers also need help in collecting various materials for school use.

Strengthening Interdisciplinary Collaboration

Encouraging stronger collaboration between different academic subjects to ensure seamless integration of sustainability concepts across the curriculum is crucial. Schools and municipalities could develop campaigns to increase awareness and engagement among students, teachers, and parents about the importance of ESD. Addressing regional disparities is also essential to ensure that the benefits of ESD are accessible to students across all regions.

International Collaboration and Initiatives

Finland, Hungary, and Poland all participate in international initiatives and collaborate on ESD projects, reflecting a shared commitment to addressing global sustainability challenges. For example, Poland's Polish Green Lungs Program enhances environmental education in schools, while Hungary's involvement in the international Eco-Schools program encourages sustainable practices in educational settings. These countries could benefit from examining and adopting successful practices from each other's initiatives to strengthen their own ESD frameworks.

Leveraging Technology and standardising assessment

The role of technology should be appreciated in enhancing ESD, utilising digital tools and platforms to engage students with environmental issues. Further exploration of methodologies to leverage technology, such as incorporating digital tools and online resources for interactive learning, is needed. Schools would benefit from developing standardised methods for evaluating and assessing ESD to ensure consistency and effectiveness across educational institutions.

Supporting schools in sustainability renewals

Funding, encouragement and time is needed to implement sustainability reforms in schools. Schools can try coming together to plan sustainability renovations and improvement of their practices. Some ideas from a recent publication from Finnish schools (Kemppainen et al., n.d.) include:

- Cooperative days to plan school renewals
- Appointing climate tutoring teachers to monitor school activity and helping to highlight points of development
- Involving students in the planning and execution processes of renovations in exchange for study credits
- Implementing mechanisms to prevent food loss such as using food scales in the waste bins.
- Acquiring information about planetary diets and utilising that information in the planning of the canteen menu
- Developing methods to lift the “special diet” tag from vegetarian food, and just incorporating vegetarian food as a normal option
- Investigating the processing of surplus food and considering possible improvements
- Presenting ideas to the municipal meal service leaders

- Taking inventory of the waste and recycling stations in the school, considering their placement, size, and sufficiency, and analysing whether the recycling of some type of material can be improved
- Considering the good principles used in the school in regards to waste separation.
- Presenting an inventory of repair and supplement plans to the school principal or the municipal leadership
- Assessing the attitudes of students and staff toward recycling
- Creating awareness of the differences between fast fashion and sustainable quality
- Observing the sustainability of the acquisitions of the school: are they sustainable, safe and ecological, and have they been produced locally?
- Creating awareness of green transportation in the school such as walking or biking and presenting the results to the renovation crew
- Enabling schools to organise travelling to eco centres, water treatment plants, and sustainable restaurants
- Considering the possibility of shoeless schools, which saves cleaners time, reduces the use of chemicals, and preserves surfaces

Strengthening Community Collaboration

Fostering stronger connections between schools and local communities is vital for implementing sustainability initiatives beyond the classroom. Municipalities should encourage collaborative efforts to address sustainability challenges at a grassroots level, ensuring that changes in knowledge and attitudes extend beyond schools and into the wider community. Schools can plan and execute sustainability renewal programs and renovations more easily if they are planned together.

Re-establishing School Gardening

Actually, one more clear example of how sustainability and environmental approaches can be incorporated into teaching is through gardening. Gardening can provide children with hands-on learning experiences that promote environmental awareness and sustainability. Children can learn about the natural cycles of plants and the importance of biodiversity through planting and caring for a garden. School gardens have been important symbols of education in the past. For more than a hundred years, kindergarten and school gardens were part of education and training, preparing for everyday life, and providing practical, experiential learning. In recent years and decades, school gardens have been discontinued, but in an increasing number of places this tradition has been revived. There are several gardens available in primary schools and even in kindergarten in Hungary, this has been a great practice for decades. In Hungary, you can join the network of school gardens, can receive an award for your school garden and even have the chances to get funded through „iskolakert - program" (school-gardening programme).

Tips and tricks for teachers to help schools reach education goals for sustainable development

How do I incorporate sustainability in my own teaching?

„In Finland, in science and environmental studies, using scrap materials to great effect to capture children's attention is all about sparking their curiosity and imagination. We have built bridges from styrofoam, rubber bands, newspapers, straws, toothpicks, peas, lego, etc."

| A teacher from Central Finland.

In addition to providing information on the national curricula, initiatives and best practices in Finland, Poland, and Hungary, a key mission of the SCRAPPIES project was to provide as many ideas, tools and help to educators as possible, to successfully implement ESD along their teaching journey. We acknowledge that teachers' teaching preferences and needs vary as much as the learning preferences and needs of their students, and clearly, no single pedagogy exists to answer everyone's needs. Teachers' work involves developing their own teaching philosophy, which harnesses their own personality and preferences while also affecting the kinds of activities they are comfortable using in their classrooms. Teachers can surely come up with their own ideas, but information, tips, tricks, and pre-prepared scrap material sets and scenarios aligned with curriculum objectives can greatly save both time and energy. It is our aim to provide tools and information which can be adapted for different teaching and learning styles. Our learning materials and scenarios were tested by different teachers and learning groups to ensure adaptability to different preferences. For ease of arranging lessons around the use of reusable materials and scraps, we also recommend communicating with school staff and involving home communities to supply needed scrap materials for ongoing educational activities.

What engages students to learn new things?

We asked educators in Finland, Poland, and Hungary to share their views on what engages their students to learn new things in their schools. We believe that each country's ideas and preferences can be applicable in whichever country so the ideas have been listed as one list here:

Preference for Sensory Learning and Hands-On Engagement:

Children in all three countries show a strong inclination toward sensory experiences, valuing tactile, visual, and auditory stimuli. They enjoy hands-on activities such as theatre, movement, music, and role-playing.

Innovation, originality and creative Expression:

Children are open-minded and innovative, often preferring to create their own visions rather than follow pre-made patterns or instructions. Children like to express their creativity through various means, allowing for self-expression and artistic exploration.

Instructional simplicity:

Materials used for learning should maintain a user-friendly and straightforward format, avoiding excessive explanations to keep children engaged.

Open-Ended and Dynamic Learning:

While structure in learning is important, children also thrive in an open-ended learning environment that encourages exploration and interpretation over rigid constraints.

Critical Thinking and Problem Solving:

Children appreciate activities that challenge their problem-solving skills and foster critical thinking.

Visual and Colourful Experiences:

Children are inspired by vibrant colours and visual experiences, which enhance their engagement.

Playful and Dynamic Environments:

Children enjoy dynamic environments filled with happy, playful activities that stimulate their interest.

Captivating Non-Electronic Materials:

There is a need for non-electronic materials to be captivating through sensory experiences, like touch, sound, and unique forms, to effectively engage children who are drawn to screen-based activities.

Why is it important to go above and beyond the regular?

Encouraging Open-Ended Exploration

Encouraging open-ended exploration is important as it cultivates creativity and innovation. When students are given opportunities to experiment with a variety of materials and activities, they learn to think divergently — exploring multiple solutions to a problem rather than settling for the obvious one. This kind of exploration sparks curiosity and imagination, which are essential for developing problem-solving skills and adapting to new challenges. By moving beyond structured tasks, students discover the joy of learning and the satisfaction of creating something unique, which builds confidence in their abilities to think creatively.

Embracing Inquiry-Based Learning

Incorporating inquiry-based learning approaches that lead to asking questions, seeking answers empowers students to take control of their educational journey and explore topics of interest. By engaging in self-directed projects and investigations, students learn to pursue their passions, which fosters deeper understanding and intrinsic motivation. Moreover, inquiry-based learning equips students with research skills, critical thinking, and the ability to communicate their findings—skills that are crucial for success in both academic and real-world settings. Providing resources and guidance is essential to support students in conducting research, experimenting, and sharing their findings with others.

Cultivating a Growth Mindset

Cultivating a growth mindset is crucial to help students develop resilience and a love for learning. In a growth mindset culture, students are encouraged to take risks, embrace challenges, and learn from their mistakes, which prepares them to handle setbacks in both school and life. This mindset shifts the focus from fixed abilities to the value of effort and improvement, making students more willing to engage in difficult tasks and persist until they succeed. By fostering a supportive environment where students feel safe to express themselves without fear of judgement, we help them build the confidence to tackle increasingly complex problems.

Integrating Playful Learning Activities

Infuse playfulness into learning activities to engage students' senses and emotions. Incorporate games, simulations, role-playing, and storytelling to make learning enjoyable and memorable. Use humour, music, and movement to create a lively and dynamic atmosphere that energises students and enhances their motivation to learn. Encourage collaboration and teamwork through cooperative games and group projects that promote communication and social skills.

Promoting Autonomy and Ownership

Empower students to take ownership of their learning by giving them opportunities to make choices and decisions. Allow students to design their own projects, set goals, and evaluate their progress. Provide autonomy within structured guidelines, allowing students to explore their interests while meeting learning objectives. Encourage reflection and self-assessment to help students develop metacognitive skills and become independent learners.

Playful Learning Environment Inside and Outside the Classroom

Organisation of the space:

How do we create an atmosphere conducive to playful learning? How do we present the material? Inside and outside of the classroom.

In the realm of education, the design of the learning space plays a crucial role in shaping the learning experience of students. An environment that fosters curiosity, creativity, and engagement is essential for effective teaching and learning. This section explores various strategies for organising the learning space to promote playful learning both inside and outside the classroom, offering practical tips and insights for educators.

The learning environment encompasses physical, social, and emotional elements that influence students' learning experiences. By intentionally designing the learning space, educators can create an atmosphere that encourages exploration, experimentation, and active participation. Playful learning, characterised by hands-on activities, collaborative tasks, and open-ended exploration, is particularly effective in promoting deep understanding and retention of concepts. In this section, we will delve into the principles of organising the learning space to facilitate playful learning, both within the confines of the classroom and in outdoor settings.

Inside the Classroom

Flexible Seating Arrangements:

Gone are the days of rigid rows of desks facing the front of the classroom. Instead, educators are embracing flexible seating arrangements that allow students to choose their preferred learning environment. From bean bags and floor cushions to standing desks and cosy reading nooks, providing a variety of seating options caters to different learning styles and promotes comfort and engagement.

Learning Centers:

Transforming the classroom into distinct learning centres offers opportunities for hands-on exploration and discovery. Designate areas for STEM activities, arts and crafts, reading corners, and sensory experiences. Rotate materials regularly to maintain novelty and stimulate curiosity. Encourage students to move freely between centres, fostering independence and self-directed learning.

Displaying Student Work:

Celebrate student achievements by prominently displaying their work throughout the classroom. Create dedicated bulletin boards or gallery walls to showcase artwork, projects, and written assignments. Rotating displays keep the environment fresh and provide opportunities for reflection and peer feedback.

Interactive Whiteboards and Technology Integration:

Utilise interactive whiteboards and digital technologies to enhance classroom engagement. Interactive whiteboards allow for dynamic presentations, interactive quizzes, and collaborative brainstorming sessions. Incorporate educational apps, online resources, and multimedia content to cater to diverse learning styles and interests.

Scrap creation at a primary school, Hungary 2023

Outside the Classroom

Nature-Based Learning:

Take learning beyond the walls of the classroom and into the great outdoors. Nature offers a rich and diverse learning environment, perfect for exploration and discovery. Plan field trips to parks, nature reserves, and botanical gardens, or simply utilise outdoor spaces on school grounds. Engage students in activities such as scavenger hunts, plant identification, and nature journaling to deepen their connection with the natural world.

Community Engagement:

Forge connections with the local community to enhance learning experiences outside the classroom. Arrange visits to museums, libraries, and cultural centres, where students can engage with exhibits and artefacts firsthand. Collaborate with local organisations and businesses to offer real-world learning opportunities, such as internships, mentorships, and service projects.

Outdoor Learning Environments:

Design outdoor learning spaces that inspire creativity and exploration. Incorporate elements such as garden beds, sensory gardens, outdoor classrooms, and art installations. Provide materials for hands-on activities, such as magnifying glasses, binoculars, and art supplies. Outdoor learning environments offer unique opportunities for interdisciplinary learning and promote a sense of stewardship for the environment.

Conclusion:

By thoughtfully organising the learning space, educators can cultivate an atmosphere conducive to playful learning both inside and

outside the classroom. Flexible seating arrangements, learning centres, and displays of student work promote engagement and autonomy within the classroom, while nature-based learning, community engagement, and outdoor learning environments extend opportunities for exploration and discovery beyond the school walls. By fostering creativity, curiosity, and enthusiasm in playful learning, educators can create a vibrant and dynamic learning environment that inspires students to explore, discover, and grow. Through open-ended exploration, inquiry-based learning, and a growth mindset culture, students can develop essential skills such as critical thinking, problem-solving, and collaboration while cultivating a lifelong love of learning.

Practical Tips for Implementation

- Collaborate with students to design the classroom layout and select seating options that cater to their preferences and needs.
- Establish clear guidelines for transitioning between learning centres and encourage students to take ownership of their learning environment.
- Incorporate student-led projects and inquiry-based learning activities that allow for hands-on exploration and experimentation.
- Integrate technology thoughtfully, ensuring that it enhances learning outcomes and promotes active engagement rather than passive consumption.
- Foster a culture of reflection and feedback, where students are encouraged to evaluate their own work and provide constructive criticism to their peers.
- Continuously evaluate and adapt the learning space based on student feedback, emerging trends in education, and best practices in classroom design.

Tips and ideas on utilising scrap and recycled materials in your teaching:

Scrap materials can be applicable across a wide range of subjects, including but not limited to mathematics, chemistry, physics, environmental education, biology, and geography. Educators can regard a variety of waste materials, including rubber bands, cardboard, yarn, egg cartons, paper, bottles, CDs, and crepe paper, as valuable resources for hands-on learning experiences. Here are some ideas for teachers on how to implement the use of scrap materials in their teaching:

Mathematics and Physics:

Trade and value:

Use scrap materials as currency and trade goods in a playful shop scenario to teach concepts of value and exchange.

Geometry:

Utilise rubber bands and cuttable scrap materials for measurement and geometry activities. Mark points on a map using rubber bands for geometry lessons.

Problem-solving and coding:

Build labyrinths from cardboard for immersive lessons across subjects like maths, coding, and problem-solving. Use scrap materials for creative coding exercises, such as designing mazes or simple circuits.

Demonstrations and experiments:

Create simple tools like balances and slides to demonstrate concepts such as friction and acceleration. Conduct physical experi-

ments using waste materials to explore various physics concepts. Use old CDs or glass to demonstrate light refraction and other abstract physics concepts.

Humanities and Language Teaching:

Puppets and Stage Designs:

Create puppets and stage designs from scrap materials to enhance storytelling, representing historical figures or literary characters.

Shadow Theatre:

Craft shadow figures from scrap materials for storytelling, fostering communication skills and creativity.

Role-Playing and Costumes:

Build costumes and props from scrap materials for role-playing and historical reenactments.

Stage Design and Props:

Use scrap materials to design stages, props, and costumes for school plays, fostering creativity and imagination.

Sensory and Relaxation Techniques:

Incorporate scrap materials into sensory and relaxation exercises for students.

Memory and Grammar Exercises:

Use scrap materials for engaging language activities such as memory training, grammar exercises, and word associations.

Arts and Sports Education:

Art Projects:

Use natural waste (e.g., nut shells) for creating collages, drawings, assemblages, and paintings. Incorporate reusable and scrap materials like crepe paper, yarn, and cardboard into art projects, fostering creativity and artistic expression. Old toothbrushes can be repurposed as painting brushes.

Sensory Paths:

Create sensory paths using scrap materials to promote sensory stimulation in physical education.

Musical Instruments:

Construct musical instruments from scrap materials, and use yarn and other materials to create huge musical staves with notes made from scrappies.

Sports Equipment:

Build sports equipment from containers and ecological materials for physical activities. Build obstacle courses from boxes and broomsticks etc.

Handicrafts and Historical Projects:

Mechanical Works:

Build catapults and other mechanical devices from scrap materials as part of handicraft lessons. Use old scrap wood pieces for new woodwork and artwork projects!

Historical Reenactments:

Recreate historical sites, such as Rome, by painting canvases and constructing markets, temples, and aqueducts using scrap materials. These projects can include virtual representations of the created structures.

Interdisciplinary and Environmental Education:

Build Sustainable structures:

Bird feeders and other ecological projects can emphasise sustainability. Use egg cartons for small plant cultivation to teach about soil fertilisation and plant growth. Use scrap materials to create models of biological processes or ecosystems.

Environmental Values in Stories:

Incorporate environmental themes into storytelling activities using scrap materials. Discuss pollution and waste decomposition using scrap materials as examples.

Architectural Models:

Use scrap materials to build models of castles and other structures, integrating lessons in architecture and history.

Geography Models and Landscapes:

Build hills and simulate erosion using water and scrap materials for hands-on geography lessons. Create different types of landscapes and maps using scrap materials.

Some of the ideas above demand further explanation: cardboard labyrinths might be exploited in a variety of ways in maths, in logopedics, in geography, in informatics. Many other props can be used in connection with the labyrinth. We can easily hide important points inside the labyrinth. Students can exploit the labyrinth using compass and learning geographical directions. In a similar way children may learn coding - how to navigate the labyrinth according to the coded instruction. The children can create their own codes. We can use yarn to measure distances on the maps and in reality. We can use different colours of yarn to mark specific geographic altitudes. Egg cartons can be used for coding and calculating, we can also use various natural products such as: cones and corks.

We can play shopping games. Scraps of paper may become money. We can discuss different forms of money. We can learn how to estimate value and weight. We can learn to segregate and discuss different professions present in the shop. We can discuss ecological aspects of shopping and packaging - how to reduce plastic. We can discuss healthy food and healthy habits as well as limiting waste.

We can use scrappies to build a model of the human body, we can also build parts of the body for example an ear. We can also build a plant, or a flower. It is possible to make a working musical instrument out of the bottles. We can fill the bottles with water, sand, stones, mud and we can check the volume of different materials. We can see which materials float and which sink immediately. We can also perform physical experiments involving fire with candles. Covering a candle with a bottle will show how the burning process requires oxygen. Separating different materials based on their colour and origin - an occasion to teach children about processes of production of plastic, cardboard and other materials that often became waste with time. Educating about how those materials decompose.

For physics lessons teachers thought about using CDs. To show them how light refract, teach about reflection. Egg cartons can be used as pots for growing small plants like cress.By using crepe paper, teachers can grow coloured plants that will likely catch children's attention and then explain to them how it was possible. Cardboard can be used as food for earthworms and in this way helps with soil fertilisation. From a variety of waste materials students can build bird feeders. Different artworks with use of waste materials can be an occasion to talk with students about different types of pollution - which can start a topic of different means of transport and which is more ecological and why is it that way.

In Finland, students have built catapults and other mechanical works from scraps, but it depends a bit on the students and groups which style suits and interests them. One teacher had built Rome in various stages, from painting a canvas to building the central market and building temples around it, and they also made a virtual representation of the city they built using software. Ancient greek technology and roman technology, all the concepts that they had in the past, can be used very powerfully and eye-opening. Aqueducts for example were demonstrated so that they had the equipment and they had to build and problem-solve how to transport water from place a to b.

The SCRAPPIES Snaps: Curriculum relevant, ready-to-use teaching packages using scrap materials

As with every type of new material, its integration to the existing curricula is of utmost importance. Teachers are overwhelmed with tasks in their day to day occupation, and for something new to be introduced and used, the material needs to answer the learning goals of today's education, be simple and effective for the teacher to implement, and offer something new and exciting for the learners to warrant the use of these new materials. Our learning materials strive to address as many of the needs of curricula as possible. The following learning materials known as the "snaps" are designed to build social skills such as cooperative decision-making, problem-solving, listening skills, mindfulness, and collaborative creativity, among many, many other learning objectives. In addition to many transversal learning objectives, our work can easily be used to teach languages through tactile phenomenon-based learning, and the snaps work well for subject integration in general too, bringing together many essential competencies in one concise package.

So what is a snap, exactly? One of the main materials we developed over the course of this project was the "snap". Snaps are short, graphically designed lesson plans, which can be used as are, taken apart to use parts of them, or modified to suit your particular learning group and their needs. Each snap is a 1-2-page glimpse to a topic, including the following sections:

1. Icebreaker/Introductory fun
2. Box with Questions for Children
3. Did You Know That...?
4. Creative task
5. What could be useful?
6. Learning Outcomes

Each snap begins with an icebreaker/introductory activity, which paves the way for the introduction of a new topic or prepares the children to take it easy and to let their creative minds wander more freely. The introduction is followed by a box of questions that the teacher can use to spark that creativity even more and to get the students really thinking about the topic, most often sharing their thoughts and ideas in pairs, in small groups, or with the whole group. The box of questions is followed by a section with some snappy-fast knowledge in the "Did you know that…?" section, which then brings us to our biggest main task of each snap, the creative task.

The creative task is an assignment most often completed in small groups, but can be done in pairs or even individually. The ideas always incorporate the use of recyclable materials, loose parts, or "scraps' „ which the teacher can provide for the students from their school, the students can go hunt for outside or inside of the school area, or be asked to bring from home before the lesson. Anything that is no longer needed for other things can be used, the sky's the limit of their creativity. Usually though, the school should provide basic crafting materials such as scissors, glue and tape, and if available, sometimes paint or other more crafty materials could be used. The snap provides a useful list of what could be useful for the task, as well as for the majority of snaps, a quick reference of learning objectives should the teacher be wondering why they should use the snap in their teaching.

In total, in the project, we developed over 40 of these sustainability-themed activity packages for teachers to enjoy and utilise in their teaching. To go through a full snap may take anywhere from 1-3 full lessons, as some of the activities, especially the creative task may inspire the classroom to complete expansive projects together, should the learners and their teachers wish so. We envision that the snaps could be best used as a fun introduction or transitional exercise bundle when moving from one teaching subject to another, or perhaps as a fun hands-on creative project module for a topic instead of using conventional textbook and workbook methods. Your imagination is the limit though, the materials are yours to experiment with and use as you wish! The snap catalogue can be found in part 2 of this book.

The SCRAPPIES webinar series

A huge part of ESD is not only the methodologies one uses in the classroom, but the ideas and inspiration from the world around us. As part of our project, we collaborated with many experts across fields of research, education, and business, to bring our audience free, open-access webinars to approach issues of sustainability from different angles in education. The SCRAPPIES project included six webinars, four of which were already completed by the time of the writing of this book.[32]

Webinar 1: Free Play with Loose Parts in Schools webinar

In our webinar we think together, what play is, and how we play or played, and how the children play today. We also show you a video on the existing examples of loose parts played in European schools. Discussion about free play and play memories, accompanied by Gdansk experiences of play with loose parts.

Presenters of the webinar:

Kamil Maciaszek - head of GratoSfera Foundation, advocate for children's play in Poland

Virag Suhajda, PhD - head of Rogers Foundation for Person-Centred Education, play researcher

32

Play is a basic need for children. Maybe also for all of us. But the issue is, that there are less and less spaces available for school-aged children to play with each other. That is why it is very important to let them play where they are mostly together – in the schools. However often schools do not have playgrounds, and have limited ways to support children. We would like to invite you to a webinar, where we would like to show you how play can be supported in schools, and how it works in some European schools already. In these schools we work with „loose parts" – reused elements from everyday life – which provide great play tools, but are actually available for free. This way we don't only support children, but also increase their awareness on reuse and sustainability.

Webinar 2: Towards Sustainable Hope with Prof. Hannu Heikkinen

When you follow the news and look around the world, the situation of the planet seems hopeless. Global warming is inevitable and species extinction threatens us in unpredictable ways. Where can you find sustainable hope for envisioning a better future? In this workshop, we examine the foundations of sustainable hope based on the GreenComp sustainability competences and the future cone.

Presenters of the webinar:

Hannu Heikkinen, PhD - professor at the Finnish Institute for Educational Research (FIER) at the University of Jyväskylä. Hannu Heikkinen is leading the research team Ecosocial Sustainability and Education of FIER. The aim is to develop education to forestall the great ecological risks of our time, the biggest of which are climate change and the sixth massive wave of extinction.[33]

33

Webinar 3: Young makers of Dolpo, Nepal – Transforming Trash into Treasures: The Story of Crystal Mountain School, a school on the roof of the world

The webinar features the Makers Club from Crystal Mountain School, which is working to improve the school through initiatives like recycling waste into teaching materials. Since the school's Makers Club was established, it has been at the forefront of innovations, from simple DIY walking robots made from scrap materials to installing automatic electric bells, implementing STEAM classes at the school.

More than just a school, Crystal Mountain School (CMS), which has been serving the Upper Dolpo area since 1994, is situated at an elevation above 4000 metres above sea level. With a focus on innovation, CMS provides a holistic education that goes beyond the standard curriculum to include computer literacy, the Dolpo dialect of Tibetan, a foundational understanding of Buddhism, and cultural performances and the arts.

"Our education is tailored to the regional culture, setting, and Dolpo people's folktales. At CMS, we work hard to give every child in our community the best education possible because we believe they deserve it."

Presenter of the webinar:

Bikash Deshar - academic advisor at CMS will discuss the work being done at their school, with a special focus on how recycling waste from the community and school can supplement scarce resources. The webinar will also highlight the school's innovations in terms of overall teaching and learning activities and how it develops future leaders through maker clubs and other multi-child organisations.

Webinar 4: Crafting Tomorrow's Minds: A Journey into Sustainable Maker Education webinar

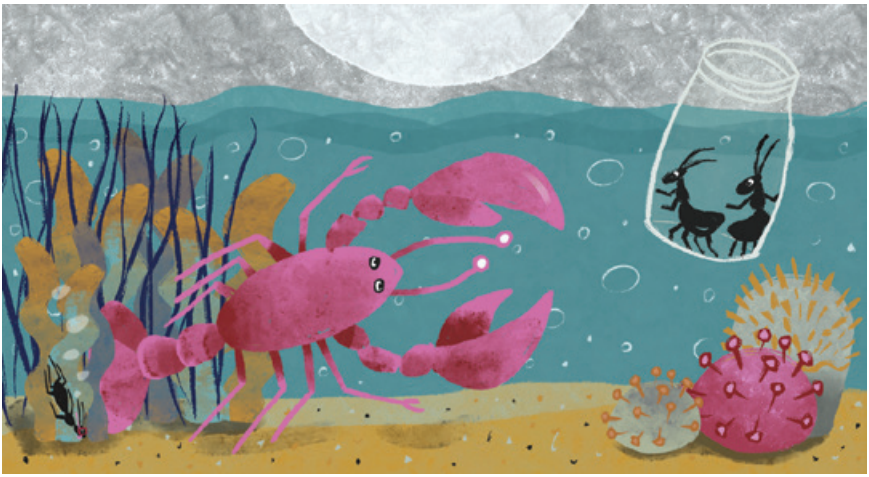
Explore the world of innovative education with Maker's Red Box, a Hungarian development organisation dedicated to creating enrich-

ing school course materials. Through a series of engaging courses designed for students in the fifth grade and up, learn about the fascinating world of digital fabrication tools such as 3D printers, laser cutters, and soldering stations.

This webinar is for educators who want to use digital technology to incorporate sustainable maker activities into their classrooms. During this webinar, we will explore the essence of maker skills, demonstrating how they can be used as catalysts for collaboration, creativity, and responsibility. Our approach combines storytelling and gamification to create an immersive learning experience that aims to shape responsible decision-makers and forward-thinking individuals.

Presenter of the webinar:

Péter Fuchs - a lead developer of maker education courses at Maker's Red Box.



Join us on this educational adventure as we present four enthralling courses:

- City of Future is building a future city scale model
- Greens Engineers takes you to Mars and helps you understand sustainable engineering
- Superheroes are an internal journey to yourself with laser cutters
- Global Warning lets you travel and experiment and learn how our world is adopting.

Webinar 5:
League of Challenges by Dr. Claudia Brovetto and Dr. Carlos Libisch from CEIBAL, Uruguay's digital technology centre

The League of Challenges - towards developing a competency framework' webinar was organised in collaboration with CEIBAL, the Digital Technology Center of Uruguay. During this webinar, our speaker Dr. Claudia Brovetto, Manager of CEIBAL and PhD. Carlos Libisch, Head of New Measurements, CEIBAL introduce: "The League of Challenges" initiative. The objective of the initiative is to prioritise skills within the learning process in classrooms, from a child-friendly perspective. The League of Challenges consists of physical materials (cards) designed for group work in the classroom. These cards feature characters that symbolically represent global skills, which can be linked to the new competency framework developed by Uruguayan education in 2023.

The League aims to:

1. Clarify: The goal is for students to understand the skill in a general way that is appropriate for their age.

2. Prioritize: The goal is to elevate the importance of the skill within the learning process.

3. Promote development: The goal is for students to learn by doing, putting the desired skill into practice.

4. Evaluate: The goal is to provide students and educators with a tool to carry out different types of assessments that prioritize and elevate the status of the skill.

Presenter of the webinar:

Dr. Claudia Brovetto - She has a PhD in Linguistics. Since 2016, she has been the manager of: La Red Comunidad de Innovación Pedagógica (Network: Pedagogical Innovation Community) and Ceibal en Inglés.

She obtained a Bachelor's degree in Linguistics from the Faculty of Humanities and Education Sciences (University of the Republic, 1995). In 1998, she did a Master's degree in Linguistics from Georgetown University, USA, with a Fulbright Commission scholarship. In 2002, she completed her PhD in Linguistics at the same university. She has been a university professor (University of the Republic, Catholic University, University of Montevideo), a professor of Linguistics in English teacher training programs (IH London Institute, Instituto de Profesores Artigas), a member of the ANEP - CODICEN Language Policy Program, and the coordinator of the Second Languages Department at CEIP.

Dr. Carlos Libisch - He has the position of Head of New Measurements since 2018. He has a PhD in Neuroscience and Clinical Psychology from the University of Santiago de Compostela, Spain, where he also completed his Master's studies. He did his Bachelor's degree in Psychology from the University of the Republic Uruguay.

He has extensive experience in both public and private educational institutions and is a researcher at the Clinical Research Center in Psychology at the Faculty of Psychology, University of the Republic. Additionally, he has worked as a consultant for the IDB in the development of assessment tools for the Institute of Educational Evaluation, as well as for the Pan American Health Organization on drug prevention programs. He has published several international articles on topics related to education and health.

Webinar 6: Honouring Children's Voices: Supporting Loose Parts Play at Home and at School

Explore the transformative power of loose parts play in nurturing children's creativity and imagination. Sharing the inspiration behind her children's book, The Magical Box, Rafaella will take participants on a mindset shifting journey, delving into the endless possibilities that arise when children interact with open-ended materials. The short session aims to spark the beginning of meaningful conversation among parents and educators, highlighting the importance of listening to children's voices in their play experiences. We will share stories from both home and classroom settings, with a special focus on the unique cultural context of Hong Kong. Participants will leave with practical insights and strategies on supporting loose parts play, fostering a magical environment where children's creativity can flourish.

Presenter of the webinar:

Rafaella Tung is a dedicated mother of three and an experienced early childhood and special education educator. She established the first bilingual Reggio Emilia inspired preschool in Hong Kong, and co-founded the Hong Kong and Macau Reggio Emilia Study Group. Passionate about advocating for children's needs and rights, Rafaella drives transformative change through consultancy work with schools and renowned organizations, guest lectures at universities, contributes to parenting publications, and leads workshops for teachers and parents. She acts as a Service and Development Committee Member for Playright, a Hong Kong based non-profit organization advocating children's right to play. She also authored a children's book: 'The Magical Box,' which carries an embedded message for parents and educators about the importance of celebrating childhood creativity and imagination.

Teacher training events

Sometimes proving the materials or ideas is not enough. Educators often need hands-on training to see the value of implementing new teaching strategies in their work. Given the possibilities, such training can be provided in various ways: through teacher professional development days, learning scenario demonstrations at schools, and sometimes even by organising teacher training camps. In October 2023, we organised a teacher training camp in Piliscsaba, Hungary. A small amount of teachers from Finland, Poland and Hungary gathered together for a week to brainstorm, co-design, and test our "snaps" lesson plans and activities, introduced earlier in this book. Here is what one of our participating teachers had to say about the week:

Training of Trainers Event for Scrappies Project, Hungary 2023

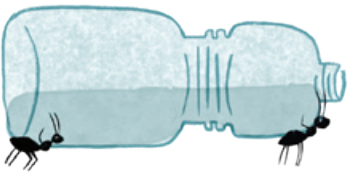
Training of Trainers Event for Scrappies Project, Hungary 2023

„First, it was a bit difficult for me to imagine how Snaps work in the classroom. Also participants came from some countries, which means we have a different culture, school system and curriculum. I wondered how we could develop and improve the same creative useful learning material. But WE DID. As the beginning explanation, "'Snaps' is like snapping your fingers to break out your idea", and once we understood the concept and the flow of a Snap, we could create as many Snaps as we wanted as long as we had ideas. I thought: this is the main role for the teacher, to design lessons with creativity. Even though we had different backgrounds, as long as we were teachers, we could share ideas while envisioning a fun classroom. This training made me realise what it means to be a „teacher".

| Ayaka Miyashita, comprehensive school teacher, Finland

Training of Trainers Event for Scrappies Project, Hungary 2023

Training of Trainers Event for Scrappies Project, Hungary 2023



Closing Remarks

You have just read our education for sustainable development (ESD) handbook for primary school teachers and school leaders. In this book, we have provided an overview of the current situation of ESD in Finland, Poland, and Hungary, as well as collected a variety of advice and ideas on how to approach ESD. We hope that you have enjoyed exploring each country's strengths and weaknesses when it comes to ESD. We hope that this book has provided you with curricular curiosities, research results, and a wealth of ideas for good practices and initiatives for ESD. We hope that you can put some of the practices we have provided into effect at your local schools and communities, and that the important messages about ESD reach the policymakers in your area. Most of all, may this book spark your creativity and motivate you to take action, whether big or small. Everything you do today paves the way for a lighter tomorrow.

As said at the beginning of the book, this is by no means a comprehensive look at the topic of ESD in Europe or even in the target countries of Finland, Poland, and Hungary themselves. Many difficulties and problems, as well as great and visionary practices are

taking effect simultaneously without us knowing about them. There are teachers and schools in remote places who have solved many sustainability challenges with practices that we are not even aware of. The sharing of information is crucial, but remains a challenge, even in this digital age. Perhaps by writing this book we have managed to add to the growing wealth of knowledge and to shed some light on this fundamental yet under-researched topic. On behalf of our entire team: thank you for reading, and we wish you all the best on your educational journey!

PS. We encourage you to check out the appendices of this book: the SCRAPPIES Toolkit with plenty of ready-made materials for your sustainability teaching lessons! In the toolkit, you can find all our SNAP lesson plans and more! And once again, you can find our sustainability webinars and other educational materials on YouTube @ Innovative Learning Environments Finland.[34]

Training of Trainers Event for Scrappies Project, Hungary 2023

Partners behind the SCRAPPIES Project

Scrappies is an Erasmus+ project (its full name is Scrappies – Enhancing Creativity and Sustainable Attitudes of Children through Play and Recycled Materials, 2022-1-PL01-KA220-SCH-000087886) run by an international (Finnish-Polish-Hungarian) consortium.

The main focus we are addressing in this project is the re-use of materials, ‚scrappies', in education. Through all the resources we produce, we aim to support schools and school staff to work with children in a creative, empowering and sustainable way.

Recycling as reusing materials is an essential topic in the area of waste reduction and environmental activism. Reuse is one of the most effective ways of reducing waste.

Our project addresses UN's Education for Sustainable Development approach by implementing several Sustainable Development Goals (SDG) in our program: responsible consumption (by reusing materials), gender equality (by doing creative activities together we create the conditions for collaboration where both genders are empowered in their activities and play together), climate goals (by increasing and reinforcing reuse the production of industrial waste is reduced).

The project helps students and teachers to explore the SDGs through the creative integration of Science, Technology, Engineering, Arts and Mathematics (STEAM). The pedagogical approach implemented and motivated by this project is based on the principles of project-based learning (PBL), including authentic driving questions, recycling-based interactive artefacts, which support the participants of the learning process in actively exploring various potential responses to the driving questions of Sustainable Development and coming to more complex questioning. Students and teachers will actively inquire the driving questions, and they are supposed to develop the transdisciplinary STEAM approaches integrating the rationales of several school subjects and diverse communities of learners in the project.

The project, based on inexpensive, generally accessible materials and didactics implemented in any given curricular context, will motivate students' and teachers' reflection on sustainability in various complex relations, especially regarding: future/alternative scenarios visioning; contextualizing; dealing with complexity; critical thinking; decision making and the clarification of values; multi- and transdisciplinarity; managing emotions and concerns. The project aims preventing early school leaving and failure in education by making learning content engaging and motivating through simple, creative approaches. We also aim to raise students' and teachers' awareness towards environment and climate change and would like to introduce new learning and teaching methods and approaches.

Regarding the project outputs, in line with the main principles of UN's Education for Sustainable Development, we are mainly focusing on learning key competencies of cross-cutting areas like systems thinking, anticipatory, normative and strategic skills and collaboration, critical thinking, self-awareness, and integrated problem-solving. (UNESCO, 2017)

GratoSfera Foundation

The GratoSfera Foundation is dedicated to advancing free play with loose parts through its various initiatives. Their mission involves raising awareness about the significance of free play and advocating for the rights of children and young people to engage in it. The foundation is committed to promoting optimal practices in decision-making processes and within all settings where children play. Understanding the pivotal role of play in child development and skill acquisition, they believe that equipping children with essential competencies and fostering their confidence is essential for their future success.

The foundation provides training and public education on the concept of free play, offering workshops, training sessions, and long-term mentoring programs for schools and institutions across Poland. They extend comprehensive support to kindergartens and schools, both public and private, as well as municipalities, cities, and governmental agencies. Additionally, they collaborate with private sector entities to facilitate the donation of loose parts for play through the GratoSfera platform, linking schools with companies and organisations willing to contribute to this cause.

Rogers Foundation

The main area of the Rogers Foundation (RFP) as an institute and also of staff members as professionals is “soft skills development”: we believe that intra- and interpersonal skills such as EQ, empathy, self-reflexion or resilience are needed for all human beings for empowered action, to become agents in their own lives. These transversal competences later can be used for young people either in employment or in entrepreneurship - and most importantly in the private and professional life. We focus on these issues both in formal and non-formal learning environments: we have accredited and run teacher training courses (on emotional intelligence, drama and children’s free play), organise case discussion groups for teachers and run our own home-schooling institute for secondary level pupils where we establish an environment which provides faith, roots and a track for young people to mobilise their inner resources. RFP promotes and transfers knowledge, experience and tried out techniques to help professionals (teachers, educators, trainers, coaches, youth workers) and children and young adults. RFP has great experience with adapting and developing curricula for training courses and working with youth workers.

The University of Jyväskylä, the Innovative Learning Environments

The University of Jyväskylä, is a research university located in Central Finland, Europe. It has its origins as the first Finnish-speaking Teacher Training Seminary, founded in 1863. With an academic staff of more than 1800 persons, and around 14000 students are enrolled in degree programs yearly. We are among the global leading universities in the study of learning, wellbeing and basic natural phenomena. The University of Jyväskylä helps researchers achieve a high level of international success in their field. Through high quality research, we create human competence and holistic well-being throughout the life cycle, from early childhood education to old age. Our values of nurturing creativity, research freedom and scientific renewal build the foundations for leadership and impact.

The Innovative Learning Environments research group "ILE" is a research and education group within the University of Jyväskylä that focuses on the advancement of children's and young people's 21st Century Skills. The field includes especially user-driven design and study of learning technologies and spaces for enhancement of learning and wellbeing, analyses of innovative teaching and learning practices, technology-enhanced learning, ESD, and evaluation and comparison of ICT use in education. The research can also be directed to other phases of human life for the study of citizen's knowledge of society capabilities.

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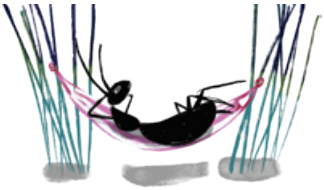

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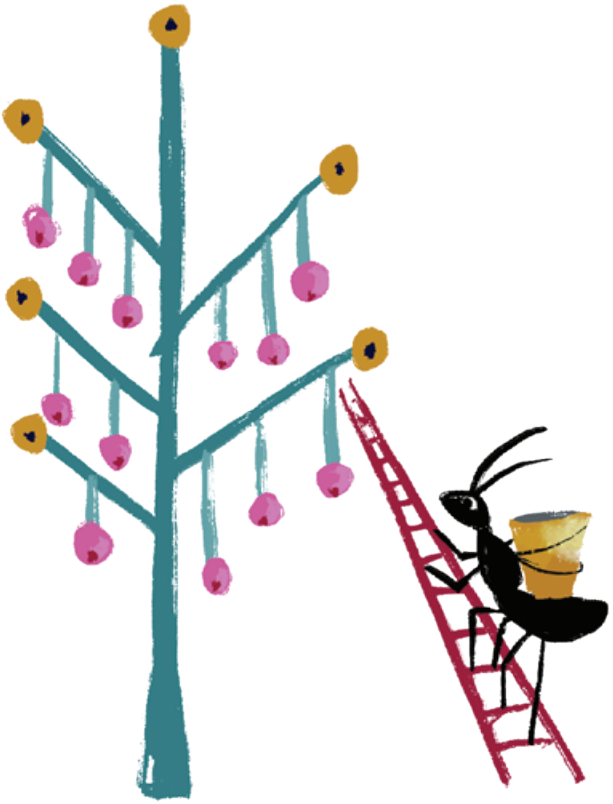

Appendix A: The SCRAPPIES Toolkit

LANGUAGES

1. Icebreaker:

- Gibberish: ask your students to form pairs and start speaking to their partner using a random language. Encourage them to try and have a conversation. Later discuss how it felt using this gibberish.
- The languages of the world: turn on a clip of people saying I love you in different languages. Ask your students to close their eyes and listen to the different sounds. Ask them to try and remember one way to say I love you and guess what language it is.

2. Questions for Children:

- How many languages can you speak?
- How many languages can you name?
- How does it feel when you can't understand a language?
- Do you think there is a universal language?
- What language do you think is the hardest to learn?
- How do you think people get along when they don't know each other's language?

Keywords: language, parts of speech, universal, grammar, writing, sounds, culture

3. Did You Know That...?

- There are over 7,000 languages spoken in the world!
- There are around 160 different English dialects!

4. Creative Task:

Ask your students to create their own classroom dictionary with fun words only they as a class understand. Later encourage them to decorate it using recycled materials.

Useful materials: paper, markers, sequins, glitter, cardboard

Learning Outcome:

Cultural Awareness- This topic will allow students to realize there is more to the world than what we hear around us.

Co-funded by the European Union

FASHION

1. Icebreaker:

Line of fashion- Ask your students to line up according to- the color of clothes they are wearing, what types of clothes they are wearing, what brand of clothes they are wearing, where they got their clothes from.

Fashion designers- Ask your students to design and draw their dream piece of clothing and present it to the class.

2. Questions for Children:

- What do you think of when you hear the word fashion?
- Who do you think dresses the best in your family?
- Where do you get your clothes from?
- Do you know what fast fashion is?
- Do you think having too many clothes is good or bad?
- How any pieces of clothing do you have?
- Do you know that fashion changes throughout the years?
- Do you know what hand-me-downs are?

Keywords: sustainable fashion, fast fashion, trends, fashion show, brands, hand-me-downs, landfill, accessories, outfit

3. Did You Know That...?

- Around 92 billion tons of unwanted clothes end up in landfills every year! That's the weight of around 13 African elephants!
- About 100 billion garments are produced every year!

4. Creative Task:

Ask your students to create clothing using recycled materials and clothes they don't wear anymore. Later organize a sustainable fashion show!

5. What Could Be Useful?

Cardboard, toilet paper rolls, paper, tissue paper, beads, beans, pieces of clothing or material from their houses

Learning Outcome:

Awareness of fast fashion - this topic will allow children to understand the negative outcomes of fast fashion and their awareness of sustainability will grow.

Co-funded by
the European Union

MOZART

1. Icebreaker: Tune-in Dance (Kokas Pedagogy Method)

Students sit down in a circle, close their eyes, the teacher/leader starts the music (e.g. best of Mozart or other appealing piece of music)

- Now we will wander into the world of music. With eyes closed, tune in to the music
- Open your eyes and make eye contact with as many of your peers as possible
- Move your fingers to the music
- Move to the music with your arms
- Move to the music with your upper body
- Stand up and start walking slowly! Watch how you step! First your heels, then your feet, your front soles, and finally your toes. Roll your body weight along the soles of your feet.
- Walk to the beat of the music and greet each other
- Dance to the music
- Dance to the music with your partners, either in pairs or in groups
- Walk to the beat
- Walk slowly, rolling your weight on your feet
- Sit in a circle and make eye contact

2. Questions for Children: Using Emotion Cards, Teddy Bear/Cat Cards or Dixit

- How did you feel when you listened to the music with your eyes closed?
- How did it feel to dance alone?
- In comparison, how did it feel to dance with your peers?
- Did you know any of the tunes?
- Do you like to listen to similar classical music?

3. Did You Know That...?

The music presented was composed by Wolfgang Amadeus Mozart, a Viennese classical composer. His specialty was that he had played the piano since he was a tiny child, writing his first piece of music at the age of 6, and he and his violinist father went on concert tours around Europe.

His most famous youthful work is "Shine, shine, little star", the melody of which is known in Hungary from the song "Hull a pelyhes fehér hó" (=The fluffy white snow falls).

Another famous work is The Magic Flute. The main character of the story is Pamina, who is hidden from the evil Night Queen in a church. The Night Queen shows Pamina's picture to Tamino, the young prince, who falls in love with her and wants to free her. She has to endure 3 trials, but in the end all goes well, the couple fall in love and live happily ever after.

4. Creative task:

Create illustrations for scenes from The Magic Flute, while listening to the main musical passages and arias for inspiration (e.g. The Night Queen's aria, How beautiful is this? Papageno and Papagena)

Display the completed works in a circle around the room, so that they can go around in a gallery-like way and students can look at each other's work.

Materials needed: loudspeaker, music, paper, coloured pencils, markers, paint, brushes

Learning Outcomes:

- Music listening skills development: sense of rhythm, movement coordination, body image development, concentration, cooperation with others, ability to let go of self
- new information - learning about Mozart, works, curiosities
- drawing skills, developing manual dexterity, combining music and drawing, visualisation, imagination, creativity

Co-funded by the European Union

THERMAL WATER

1. Icebreaker: The Life of a Sailor

We are all sailors on the endless ocean.
We must walk to music in space, but listen carefully, when the session leader/teacher gives an instruction, you have to follow it as quickly as possible.
Possible instructions:

- Lifebelt - 2 people form a circle, optionally a third person joins them
- Boat - 3 people cling together, they are the body of the boat, fourth person stands in the middle and paddles
- The boat leans right - everyone runs to the left side of the room (relative to the teacher) to counter the tilt
- The boat leans left - everyone runs to the right side of the room (relative to the teacher) to counter the tilt

To close, form groups of 4 using the boat and note who you were with!

2. Questions for Children:

- Where can the boat travel (possible answers: on water like: lake, river, sea, ocean)
- Who has sailed where in their life?
- Where do we meet water in our everyday life? (possible answers: tap, rain, bath)
- When on holiday, at the spa or beach, what kind of pool do you use? (possible answers: cold, slide, wave, thermal)

3. Did You Know That...?

- Thermal waters are springs that come from underground and have a temperature of 20°C or more. There are more than 1200 such springs in Hungary.
- Do you have one in your area?
- The hottest spring in Hungary has a temperature of 80 degrees Celsius.
- It is important to note that thermal water and medicinal water are not the same. Just because a water is warm does not mean that it has a healing effect. Thermal water contains minerals that have a healing effect.

4. Creative task:

We're tired from all the sailing, it would be nice to rest, but our boat is in a storm and needs to be repaired to get to the thermal springs on the next island.

We need to choose a captain to guide the construction. Everybody shall close their eyes. Who would feel responsible to do this vitally important job and successfully help the sailors build the boat and guide it to the neighbouring island to enjoy a well-deserved rest? With your eyes closed raise your hand if you're a brave sailor who'd like to volunteer to be captain! (first applicant selected)

Open your eyes and look for your boatmates you were in a group with at the start of the session! Choose a sailor to act as a messenger to deliver the news to the captain!

The captain will turn his back to the group and you will be given a description to decode so you can successfully build your boats! It is important to note that only the captain and the messenger chosen for each group can talk to each other, the others can communicate with each other within the group only without words.

(The group tries to fold the paperboat according to the captain's instructions)

Congratulations! Together, you have successfully repaired the boat, so you can sail to the warm thermal spring and relax after your hard work!

Finally, as a group, how satisfied are you with your work? How did it feel not being able to talk? How did the courier feel about being the only one to talk?

Materials needed: origami boat steps, papers

Learning outcomes:

- collaboration, building relationships
- spa water is not the same as thermal water, other interesting facts
- manual skills, verbal and non-verbal forms of communication, tolerance of failure, managing emotions, helpfulness

Co-funded by the European Union

EGYPT

1. Icebreaker: The Life of a Sailor

We made a big trip to reach to Egypt. To be accepted by the locals, we wanted to learn their dance, which involves standing in a circle and holding the shoulder of the person in front of us. Following the instructions of the dance leader, we need to know 4 steps:

- camel - jump forward - as camel dancing is not a smooth walk
- mummy - jump backwards - as there are so many mummies in Egypt, they are sometimes scary
- pyramid - squatting - these buildings are so huge, you have to look up at them
- sphinx - turn - because next to the pyramids is the huge lion-bodied, human-headed sculpture

Once you know the moves one by one, the dance leader can mix up the steps, speeding them up as long as the group with the best dancing feet can handle it.

2. Questions for Children:

- Who knows where Egypt is? What is its capital? (map help)
- What are the typical/special animals that live here in the desert?
- Mummies can be linked to Egypt. What do they look like?

3. Did You Know That...?

- Did you know that not only people were mummified, but animals too? There were sacred animals such as cats, and their gods were often depicted with animal heads.
- In Egypt, there were polytheistic beliefs, and when new territory was conquered, the gods of that territory were accepted. Because of the polytheism, deities were associated with different natural elements and signs, because they were not understood in the past, they were considered miracles.

Important gods: (could be illustrated with pictures)

- Amon-Ré god of the sun
- Thoth - god of wisdom, moon, depicted as a dog-headed baboon
- Isis - mother goddess, god of magic
- Osiris - fertility, god of the afterlife
- Anubis - god of the dead, depicted as a jackal or wolf
- Bastet - cat goddess, depicted as a cat's head
- Horus - earthly king of the gods, depicted as a falcon head
- Seth - god of storm and chaos, depicted as an aardvark

4. Creative task:

Before heading back home, we'll take a look around the Cairo market for typical local items. Use the tools available and make, for example, mummy figures, paper scrolls, scarabs, pyramids, camels, cats, etc.

When you have finished, give it to a fellow artist as a gift! Tell them what you created and what materials you used. A person can only get one gift to fit in their suitcase.

5. What Could Be Useful?

Materials needed: paper, cardboard, glue, string, felt, pen, pencil, toilet paper, pebbles, etc.

Learning Outcomes:

- Cooperation, coordination of movements, concentration, listening to each other
- Egyptian religion, gods, local characteristics
- creativity, manual dexterity, communication, empathy

Co-funded by the European Union

FAIRIES

1. Icebreaker: (From the Game "The Town Is Asleep")

I guide you to a magical kingdom, where a fairy bestows gifts on good children at night. However, they are in great danger because there is a mad genius in town, a scientist who wishes there were more fairies in town, so he wants to study the little fairy. Our goal is to get the fairy to safety and find the scientist so we can have a chat with him.

The town is asleep, everyone shall close their eyes. I go around and pick out the fairy by touch. Let the fairy wake up and point to someone she wants to give a gift to. Let the fairy sleep.

I go around and touch the scientist. Let the scientist wake up and point to who he thinks is the fairy. Let the scientist sleep.

The whole town wakes up. He received a gift from XY and captured the scientist YX. Who does the town suspect the scientist is?

The suspect can defend himself with arguments, then the town votes by show of hands whether they believe him. If at least half the group thinks he is the scientist, he is out of the game. The game goes on until the scientist is found or the fairy is captured, which is announced by the leader of the game.

In the next round, the leader of the game may be one of the students.

2. Questions for Children:

- In what films, fairy tales, books have you met fairies?
- What do you think fairies look like?
- What do fairies supposed to do? What do they do?

3. Did You Know That...?

Fairies first appeared in English and French mythology, as tiny, angelic, hiding creatures. The new types of fairies, including the great warrior fairies, appeared 300-400 years ago.

In Hungary there are fairy names, for example:

- Ramocsa - ramocha flower named after her
- Tarkő - according to tradition, she lives in Transylvania
- Olt - daughter of Tarkő, turned into a river
- Maros - sister of Olt, daughter of Tarkő, turned into a river
- Firtos - lives on Firtos hill
- Tartod - Lives on Tartod Hill, brother of Firtos
- Mrs. Rapsón - sister of Firtos and Tartod
- Torja - Transylvanian fairy
- Goat Stone - fairy of the mountain of Goat Stone
- Dála, Nemere, Rabonbán, Aranyka, Délibáb

There are many names here and the reason may be that Transylvania is also known as a beautiful fairyland.

The name Tünde (means elf or fairy) was created by Mihály Vörösmarty in his dramatic poem Tünde és Csongor (Elf and Csongor).

4. Creative Task:

Choose or create a fairy name for yourself. Draw what you look like as a fairy!

When you're ready, show each other, find someone you like and create a fairy family!

5. What Could Be Useful?

Once you have found your fairy family, build your fairy home together!

Materials needed: paper, coloured pencils, markers, moss, pots, stones, cardboard, berries and fruits, pieces of wood, etc.

Learning Outcome(s):

- Attention, concentration, reasoning, communication, democratic principles
- Observation, creativity, imagination, cooperation, empathy

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FARM LIFE

1. Icebreaker:

- Farm animals sound guessing game: Turn on sounds of different animals found on a farm. Have your students guess the names of the animals.
- Farm animal charades: Prepare cards with names of animals found on farms. Have your students act out and guess what animal it is.

2. Questions for Children:

- What animals can you find on a farm?
- What other things come to mind when you think of farms?
- Why are farms important for us?
- Have you ever visited a farm?
- What kinds of food products can we obtain from farms?
- What does it mean when food is organic?
- What things can you find on a farm?

Keywords: animals, crop, food products, dairy, barn, farmers, organic, hay, tractor, agriculture

3. Did You Know That...?

- Some plants actually need cold weather to flower! Apple trees are an example of plants that need cold weather.
- Dairy cows produce from 6-7 gallons of milk a day!

4. Creative Task:

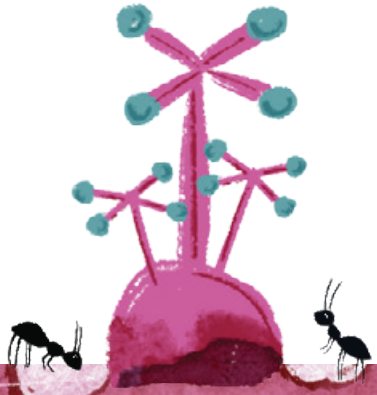
Use recycled materials to build a barn full of farm animals!

5. What Could Be Useful?

Cardboard, string, paint, tape, glue, hay, leaves, toilet paper rolls

Learning Outcome(s):

Environmental Awareness- This topic will allow students to understand where some food products come from and how important it is to preserve these elements pf society.



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FOOD- THE HUNGER GAMES

1. Icebreaker:

Fruit Salad- Each child chooses the name of a fruit or vegetable. One child stands in the middle with a fly swatter. The teacher calls out names of fruits and vegetables and the child in the middle must find the correct fruit or vegetable and pat them gently with the fly swatter.

Guessing sensory game- The teacher prepares a bag with various kinds of food for the children to choose from. The students must close their eyes and use their senses to guess the food.

Make a sandwich- Children get into pairs and one of them turns around. The other gives a back massage using phrases such as: “Cut the bread”, “spread the butter”, “sprinkle salt and pepper”, etc.

2. Questions for Children:

- What do you think about when you hear the word “food”?
- Is food that is tasty always healthy?
- What kinds of food don’t you like and why?
- How often do you eat fruits and vegetables?
- What do you eat when you are hungry?
- Does your family cook or order meals? What about frozen foods?

Keywords: healthy, protein, sugar, fats, carbs, good mood, energy, unhealthy

3. Did You Know That...?

- Watermelons are made of 70% water?
- Can you believe there is this much sugar in... fruit mousse, yoghurt, chocolate bar, banana, 7 days croissant etc.

4. Creative Task:

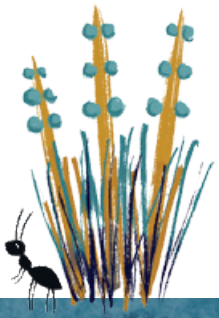
Make a healthy snack using recycled materials.

5. What Could Be Useful?

Colourful paper, tissue paper, boxes, grass, leaves, bottle caps

Learning Outcome(s):

The quality of food is important not the quantity. Food consumption is bad for the environment.



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GALAXY

1. Icebreaker:

You are a star! – Turn off the lights in the classroom and turn on some twinkly lights. Ask your students to lie down and close their eyes. Tell them to imagine they are in the galaxy. What can they see, what they can feel, is there anything they need?

Look at the stars, look how they shine for you! – Go outside with your students and lie on the blanket to look up at the sky. Discuss what is visible to them with the bare eye.

2. Questions for Children:

- Can we touch the Moon, the Sun, the stars?
- What is a galaxy made of?
- How many planets are there?
- What is the Milky Way?
- How many stars do you think are in the Milky Way?
- Do you think aliens are real?
- Would you like to visit the Moon?
- What do we use a telescope for?
- Have you ever used one? What is a shooting star?

Keywords: constellations, the Milky Way, planets, telescope, aliens, rocket, the Moon, gravity, black hole, the solar system

3. Did You Know That...?

- Do you that we would all float around if there was no gravity?
- Did you know there is something called a black hole? It is place where there is so much gravity that nothing can escape it!

4. Creative Task:

Ask you students to create planet costumes and later play solar system role play. This will help them visualize how the solar system works.

5. What Could Be Useful?

Useful materials: cardboard, toilet paper rolls, bubble wrap, glitter, pipe cleaners, glue, paper, tissue paper, beads, beans, macaroni

Learning Outcome(s):

Students will become aware that there is something besides Earth and how important it is to care for our planet because it plays a significant role in something bigger.

INSECTS- A BUG'S LIFE

1. Icebreaker: Welcome to the wonderful world of insects!

First, go outside with your group and examine nature that surrounds you. Ask your students what bugs they can observe. Have them choose one and ask them to try and remember the characteristic features. Later, ask them to draw a model of it.

Spider football- Students use their arms and legs as spider legs. Divide the group into two teams. They play this game using a soft ball.

2. Questions for Children:

- What insects can you see in your garden?
- How many species of insects do you think live on Earth?
- Are insects scary?
- Do you know that some cultures eat insects?
- Would you ever eat an insect?
- How many legs does a butterfly/spider/beetle have?
- What are some colors that come to mind when you think of bugs?
- Do you have a favorite insect?

Keywords: Insects, bugs, protein, beetle, spider, butterfly, dirt, habitat, species

3. Did You Know That...?

- Did you know that there is a type of beetle that rolls poop around? It's called a dung beetle.
- Insects are a good source of protein and that's why some cultures eat them and make them a part of their everyday diets!

4. Creative Task:

Create a habitat for and insect of your choice and call it a bug hotel.

5. What Could Be Useful?

Useful materials: pieces of wood, grass, dirt, toilet paper rolls, boxes, straws, s sticks

Learning Outcome(s):

Biology, ecological awareness, sustainability- Although bugs can appear scary or disgusting, they are a part of our ecosystem and we need them to exist!

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LIFE IN A CITY- THE CONCRETE JUNGLE:

1. Icebreaker:

Welcome to the concrete jungle. Close your eyes and imagine you are in a big city. What sights can you see? What sounds can you hear? What smells can you smell? What can you feel with your hands and feet?

Left to right-right to left: Ask the children to stand in a line and tell them 3 keywords NATURE (1 step left), CITY (1 step right) HUMAN (stay in line)

2. Questions for Children:

- What do you think of when you hear the words: nature, human, city?
- Do you have parks or forest near the place you live?
- What are the magical powers of the city?
- What elements of nature can you find in the city?
- What can we do to find more nature elements in the city?

Keywords: parks, nature, trees, playgrounds, human, public transport, pollution, health, bicycle paths, oxygen, gardens

3. Did You Know That...?

- Oslo, Norway is the greenest city in Europe! 74% of its urban areas are made of green space.
- Denmark is known to be the best country for bicycling! There are over 12,000 km of cycle routes.

4. Creative Task:

Build your version of a green city.

5. What Could Be Useful?

Useful materials: plastic bottles, wood, leaves, flowers, colourful paper, glue, bubble wrap

Learning Outcome(s):

Environmental Awareness - By exploring the concrete jungle children will learn the importance of nature in cities and what the dangers of cities without nature are.

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SUPERHEROES

1. Icebreaker:

Close your eyes – Imagine you are a superhero. You have your superpower, now think about it. You are flying, jumping very high, have all superpower you can imagine for yourself. Open your eyes and do a
Superhero pose - powerful pose exercise -do it for 2 min - how do you feel?

Save the plush animals - rescue mission
Everyone sits in a circle. Outside the circle plushtoys are lying, because a fire/flood/accident (it's up to your choice) happened. We need to save the plushies. Need to save (collect) them all, but outside the circle your hands or feet cannot touch the ground. Help each other! (if it is too easy and to make sure that everyone is involved: one person can only save one plush, but can help any other group member)

2. Questions for Children:

- What superpower you would like to have?
- What superhero you would like to be and why?
- Do all spuerheroes wear capes?
- What are the superpowers of people around you?

3. Did You Know That...?

Superheroes in real life:

- Roy Cleveland Sullivan – struck by lighting 7-times
- Dex Laserskater – finnish Skateman, he is guiding tourists, tipping waiters, doormen, street musicians, and helping the police
- Kamen Rider No.1 – 2015. Fukioka Prefecture in Japan, looking for drunk drivers

Nobel prize:

- Ferenc Krausz – Hungary, 2023, Physics
- Katalik Karikó – Hungary, 2023, Medicine
- Olga Tokarczuk – Polish, 2018, Literature
- Bengt Holmström – Finnish, 2016, Economic sciences

4. Creative Task:

- Create a superhero character – symbol, tools, mask, cape
- What's your superhero-name? What's your superpower? – present it to the others!

5. What Could Be Useful?

- Materials to use: cardboard, paper, scissors, glue, fabric or canvas, other small items

Learning Outcome(s):

True superpowers – kindness, emphaty, helpfulness, etc.
Superheroes in real life – scientists, parents, doctors, nurses, firefighters, policemen, etc.
Creativity, communication, presentations skills, cooperation

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SPIDERS

1. Icebreaker:

What is in the box? The "Fear Game"
There are many different things in a in big black bag*. Close your eyes and put your hand in it - try to descripe what you have, try to figure out what it is?
If you think you know, pull it out and show the others.
*make sure to include somekind of spider (plastic, plush..etc.)

Spider race with balls

- students have a race on all-fours and have to carry a ball on their belly

2. Questions for Children:

- Do you think spiders are useful? Are they helping us?
- Are all spiders the same?
- What are the characteristics of spiders?
- Imagine yourself as a spider. What would you do? How is your day?

3. Did You Know That...?

- 5000 species
- all of them have 8 legs and eyes
- They feed on insects which help to regulate the population of harmful insects, e.g. mosquito
- The biggest spider in the world is the Goliate Birdpsider – Venezuela, Brazil
- They can make protecton vests from spider web

4. Creative Task:

- Children have to make a huge spider using scrap materials
- Try to make the longest legs for it

5. What Could Be Useful?

Paper, toilet paper, tape, glue, colorful pens, pencils

Learning Outcome(s):

Spiders are useful creatures, you need some skills to find them. Never kill a spider - you can put them outside in a no - harm way.
Children can learn about the usefulness of small things

Key words:
spiders, living in harmony, pest control, ecosystem

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RAINFORESTS

1. Icebreaker:

- Welcome to the magical rainforest! Turn on the sounds of the rainforest and ask your students to close their eyes and imagine they are in the rainforest. Later, have them describe the experience.
- Jungle Animals Charades: prepare cards with names of animals found in the rainforest and have your class act them out.

2. Questions for Children:

- What comes to mind when you think of the rainforest?
- Would you ever like to visit the rainforest?
- What animals and plants do you think you can find in the rainforest?
- What do you think the weather is like in the rainforest?
- Do you know where the rainforest is located?
- Are there any mysteries in the rainforest?

Keywords: rain, forest, animals, plants, species, weather, endangered species, deforestation, oxygen

3. Did You Know That...?

- The Amazon rainforest is considered the "Lungs of the Earth". There are over 390 billion trees in the rainforest and thanks to this they produce around 20% of the world's oxygen!
- The Amazon rainforest is huge! It spans over 9 countries- Bolivia, Peru, Ecuador, Guyana, French Guiana, Suriname, Colombia and Venezuela. All of these countries are found in South America.

4. Creative Task:

Have your students create their own representation of the rainforest using recycled materials. They could make trees, plants or animals found in the Amazon rainforest.

5. What Could Be Useful?

Useful materials: cardboard, paint, glue, paper, crayons, materials, leaves, pipe cleaners, toilet paper rolls

Learning Outcome(s):

Environmental awareness- This topic will introduce the importance of taking care of our ecosystem to stop deforestation.

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TIME

1. Icebreaker:

Dance and Stop! - Turn on Madonna's „Hung up" and ask your students to dance as the music plays and when it stops have them freeze. You can later change the tempo of the song as the game continues.

Telling time - Present different time tracking devices to your students. These can include the clock, watches, sun clock, calendars, hourglasses. Encourage them to have an open discussion of how we measure time in different ways.

2. Questions for Children:

- What is time to you?
- Is there anything you can't wait to happen?
- How many months are in a year?
- How many days are in a year?
- What is a time zone?
- Why does time sometimes go by quickly and other times slowly?
- Since when do we measure time?
- Why is it important to be on time to school?
- How many seasons are in a year? How many days are in a year?

Keywords: time, measure, clock, hourglass, time zone, months, days, calendar, seasons

3. Did You Know That...?

- There are 38 different time zones in the world! This means that when some of you are playing, other children may be going to sleep.
- Time flies when you're having fun because you forget about checking the time.

4. Creative Task:

Ask your students to create their own time piece.

5. What Could Be Useful?

Useful materials: bubble wrap, cardboard, paper, pipe cleaners, paints, bottles, glue, toilet paper rolls

Learning Outcome(s):

Students will learn the importance of telling time and daily routines. This could teach them there is a time for everything like playing, learning, sleeping, doing chores like taking out the trash.

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FUTURE MEGATRENDS CHALLENGE
(FOR MORE EXPERIENCED STUDENTS)

1. Icebreaker:

The world is full of opportunities, but also challenges! Nature is beautiful but needs conserving, well-being can vary from time to time, we are all individuals who need to learn to coexist with other people, technology changes the world, resources are unequally distributed, and so on.

With yourself or with a partner, think about as many possible future challenges or successes as you can, that you teachers or educators might encounter. Write each of them down on post-it notes. (Online, teachers could use a padlet or similar workspace for this).

Let's form groups! Share your ideas one by one with the others, and once you are done, choose one of them as your favourite topic! Don't worry, if you really want, you can choose multiple ones.

2. Questions for Children:

- What did thinking about these topics feel like to you?
- Which topics resonated with you more, and which did not interest you?
- Have you talked with someone about a particularly interesting topic of conversation lately?
- What was it, and why was it so interesting?
- Do you think that there are ultimately limits to what humans can know?

3. Did You Know That...?

TheAccording to the Finnish Innovation Fund Sitra (2023), there are five future megatrends in the world right now. These are:

- Nature's carrying capacity eroding
- Growing well-being challenges
- The battle for democracy intensifies
- Competition for digital power gears up
- Economic foundations are cracking

4. Creative Task:

Now that you have your group, and chosen favourite topic (or topics), think of a solution or idea that could creatively solve or address the topic! You can use any scrap materials provided to you, or use whatever materials you can find that are not in use anymore.

Present your futuristic or innovative solution to the others!

(For online participants, this can be done using a virtual workspace such as a collaboard, where all participants can simultaneously draw and import pictures in the same workspace.
or use collarboard (QR Code) and make an artwork together online :)

5. What could be useful?

You can use any kinds of scrap materials for this creative task. Scrap materials can be collected beforehand by the learners, provided by the teacher, or scavenged from surroundings during the task. If the task is done online, then internet connection, web cameras and computers are needed.
Useful equipment could be: Scissors, tape, markers, paper, cardboard, any old pieces of clothing that are not in use anymore, packaging materials, glue, paint.

Learning Outcomes:

Interesting facts: New information to foster curiosity
Icebreaker: Boosting divergent and creative thinking
Creative task: Experiential & playful learning
Scrap materials: Awareness and recycling for education
Social awareness, Futures thinking, Problem solving, Divergent thinking, Arts and crafts, Teamwork

SAVING THE NATURE ADVENTURE

1. Icebreaker: "Guardians of Nature"

Imagine you are guardians of nature. Move around the space freely. When the leader gives an instruction, follow it quickly:

- Planting Seeds: Gather in pairs. One person mimes planting a seed, and the other provides sunlight, rain, and care.
- Tree: Gather in groups of three. The middle one of you is a tree, while the two on the sides are rocks.
- Growth: Form groups of four. Each person represents a stage of a tree's growth—seed, sprout, sapling, tree.
- Wind Whispers: The whole group stands still and sways like leaves in the wind.

2. Questions for Children:

- What does "saving nature" mean to you?
- Have you ever participated in activities to protect the environment?
- Where do you see the impact of human activities on nature?
- What small changes can we make in our daily lives to contribute to nature conservation?

- How does nature benefit us, and how can we reciprocate?
- Can you think of any magical creatures that might help us save nature?

3. Did You Know That...?

Every small action counts! From reducing waste to planting trees, our individual efforts collectively make a significant impact on preserving the beauty of our planet.

Forests play a vital role in maintaining the balance of ecosystems. They provide oxygen, absorb carbon dioxide, and house a diverse range of plants and animals. Forests cover about 31% of the Earth's land area.

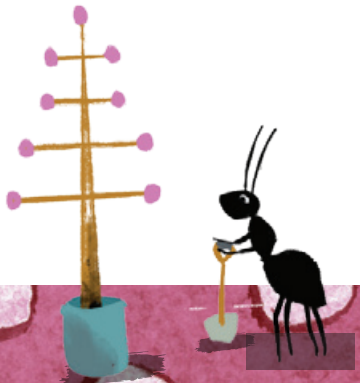
4. Creative task: "Nature's Future Sculpture"

Close your eyes and envision a future where nature thrives. Using materials like recycled items, clay, leaves, and colors, create a sculpture representing a harmonious coexistence between humans and nature.

Learning Outcomes:

- Collaboration and Team Building: Through interactive games, learn the importance of working together as guardians of nature.
- Environmental Awareness: Understand the significance of eco-friendly actions and their impact on the environment.
- Creativity and Expression: Express ideas through the eco challenge and the creation of a nature-inspired sculpture.
- Empathy and Responsibility: Develop a sense of responsibility towards nature and explore ways to contribute positively.

Let your imagination soar as we embark on the journey of saving nature together!



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THE WELL-BEING OASIS

1. Icebreaker: "Mindful Moments"

While mindfulness music plays, close your eyes and breathe deeply. Envision a peaceful place. When the leader says:

- Gentle Breeze: Sway gracefully like trees in a gentle breeze.
- Sunshine Glow: Feel the warmth and stretch your body towards the imaginary sun.
- Harmony Circle: Form a circle, connecting hands, and share a silent moment of positive thoughts.

Envision that we are travelers in a vast desert, searching for an oasis of well-being. Follow instructions:

- Lifebelt: 2 people form a circle, optionally a third person joins them.
- Caravan: 3 people join hands and move together like a caravan, crossing the desert.
- The sun rises: Everyone stretches toward the sky, embracing the warmth.
- The cool breeze: Everyone sways gently, feeling the imaginary breeze.

To close, share your feelings and thoughts during these mindful moments.

"Balancing Act"

In pairs, share personal experiences of achieving balance. One person describes a situation where balance was crucial, and the partner mirrors the posture or movement associated with that experience. Swap roles and repeat.

2. Questions for Children:

- What does "general well-being" mean to you?
- How do you find balance in your daily life?
- What activities make you feel happy and energized?
- How do you handle challenges and stressful situations?
- Can you think of any magical elements that contribute to well-being?
- What small changes can we make to enhance our well-being every day?

3. Did You Know That...?

Well-being is a holistic concept encompassing physical, mental, and emotional health. Small, positive actions contribute to an overall sense of well-being.

Well-being is not just the absence of illness but a holistic state of physical, mental, and social wellness. Relaxation techniques, like deep breathing and meditation, can significantly contribute to overall well-being.

4. Creative task: "Nature's Future Sculpture"

- The well-being oasis needs a leader. Form small groups, and choose the Well-being Guide, responsible for leading the group to relaxation.
- The well-being guide guides the group to create an imaginary well-being oasis, only through non-verbal clues (movement, sounds, et cetera.)
- The group collaboratively creates a representation of their imagined well-being oasis, symbolizing the importance of relaxation and self-care. Discuss as a group how it felt to work silently and the significance of well-being.

5. What could be useful?

Craft materials for creating the well-being oasis.

Learning Outcomes:

- Mindfulness and Relaxation: Explore mindful moments to connect with inner peace and tranquility.
- Communication and Empathy: Through the balancing act, develop effective communication and empathy.
- Self-Reflection: Consider personal well-being experiences to foster self-awareness.
- Creativity and Expression: Express thoughts and feelings through the creation of a well-being mandala.

Let's embark on this journey to well-being wonderland, where every step brings us closer to a balanced and harmonious life!

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SAUNA SERENITY

1. Icebreaker: "Sauna Simmer"

Imagine you're in a sauna, a space for relaxation. When the leader signals:

- Gentle Heat: Slowly raise your arms, feeling the warmth.
- Steam Release: Gently sway side to side, releasing imaginary steam.
- Cooling Down: Gradually lower your arms, symbolizing the cool-down phase.

To close, share your sensations during this virtual sauna experience.

"Sauna Storytelling"

In groups of three, share sauna-related stories or experiences. Rotate roles—speaker, listener, and timekeeper—ensuring each person gets a chance to share their story.

2. Questions for Children:

- What comes to your mind when you think about a sauna?
- Have you ever experienced a sauna? How did it make you feel?
- What benefits can a sauna bring to our well-being?
- Can you think of any magical elements associated with saunas?
- How do you practice self-care and relaxation in your daily life?
- What are your favorite things to do to unwind and find serenity?

3. Did You Know That...?

Saunas have been used for centuries for their potential health benefits, including relaxation, improved circulation, and stress relief. In Finland, the Sauna used to even be the place for giving birth!

4. Creative task: "Sauna Sensation Collage"

Create a collage that represents the sensations of a sauna experience. Use images, colors, and textures to capture the warmth and tranquility of a sauna.

5. What could be useful?

- Magazines or Printed Images: Look for pictures of saunas, serene spa environments, and elements associated with relaxation. Images of people enjoying sauna sessions or nature scenes can enhance the collage.
- Colored Paper or Cardstock: Choose warm and soothing colors like shades of brown, beige, and earthy tones to represent the sauna's ambiance.
- Textures: Incorporate materials with different textures like cotton balls or fabric to simulate the softness and warmth of a sauna.
- Glue and Scissors: Essential for cutting out images and securing them to the collage.
- Markers or Crayons: Optional for adding personal touches, doodles, or highlights to the collage.
- Canvas or Thick Paper: Use a sturdy surface as the base for the collage, providing stability and support.
- Essential Oil Samples (Optional): Add a sensory element by including small essential oil samples or scented markers for a touch of aroma in the collage.
- Natural Elements (Optional): Tiny dried flowers, leaves, or small branches can enhance the nature-inspired aspect of the sauna experience.
- Small Towel or Fabric Strips: Represent the sauna towels or wraps by incorporating small fabric elements into the collage.
- Magazine Clippings with Text: Words or phrases related to relaxation, warmth, and tranquility can be included for added context.
- Clear Sealant (Optional): If desired, a clear sealant can be applied to protect and enhance the collage's longevity.

Learning Outcomes:

- Mindfulness and Relaxation: Practice a virtual sauna experience for a moment of relaxation.
- Communication and Connection: Share personal stories to enhance group connections.
- Cultural Awareness: Learn about the cultural significance of saunas in different parts of the world.
- Creativity and Expression: Express sensations through the creation of a sauna sensation collage.

Let the heat guide us to a serene and peaceful sauna experience!

AIR - THE BREATH OF LIFE

1. Icebreaker: "Whispers of the Wind"

Ask the children to close their eyes and imagine they are tiny whispers in the wind. Instruct them to move subtly, imitating the gentle breeze. Then, prompt them to intensify their movements, embodying a strong gust. Finally, ask them to settle down, imitating the calm rustle of leaves. This exercise helps them connect with the concept of air and primes them for further exploration.

A story picked from thin air

- participants collectively create an imaginative story about a journey through the air.
- Each person contributes a sentence or two, building on the previous person's contribution.
- The story could involve encounters with different types of air currents, challenges, and discoveries.
- After the story is complete, participants share their favorite parts and what they enjoyed about the collaborative storytelling experience.

2. Questions for Children: What does air represent to you?

- Who has experienced a strong wind or gentle breeze recently?
- Where do we encounter the movement of air in our everyday lives (possible answers: wind, fans)?
- When you think of fresh air, where does your mind take you?

3. Did You Know That...?

Air is a mixture of gasses, primarily nitrogen and oxygen, essential for life. The movement of air, or wind, plays a crucial role in weather patterns and the dispersion of seeds and pollen. The air around us is teeming with life, and while we can't see it, it influences everything from the weather to the rustling of leaves.

4. Creative task: "Air Elemental Sculptures"

Using various materials (e.g., paper, cotton, wire), let the children create sculptures representing different aspects of air. Encourage them to think about the invisible qualities of air and how they can express them through their artwork. Reflect on the sculptures as a group, discussing the symbolic elements each child incorporated.

5. What Could Be Useful?

Paper, cotton, wire, craft materials for sculpture, and an open space for the children to create their air elemental sculptures.

Learning Outcomes:

- Team collaboration and relationship building.
- Understanding the importance of air in nature and daily life.
- Non-verbal communication, teamwork, and problem-solving skills.
- Appreciation for the dynamic nature of air.

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GLASS - THE TRANSPARENCY TALE

1. Icebreaker: "Glass Symphony"

Imagine we are all pieces of glass, each with its unique transparency. When the session leader/teacher gives an instruction, follow it promptly.

- Clear Pane: Stand still, mimicking the clarity of a clean glass pane.
- Stained Glass: Move gracefully, embodying the vibrant colors of stained glass.
- Frosted Glass: Move slowly and add a slight blur to your movements, imitating frosted glass.
- Shattered Glass: Create dynamic, fragmented movements to represent shattered glass.

To close, form groups of four, noting who you were with during each glass representation.

2. Questions for Children:

- What does glass symbolize to you?
- Where do you encounter glass in your daily life?
- Can you think of different types of glass (e.g., window glass, drinking glass, stained glass)?
- Have you ever wondered how glass is made?

3. Did You Know That...?

- Glass is a versatile material with applications in architecture, art, and daily items, showcasing both utility and beauty.

- Glass is made by melting silica sand, soda ash, and limestone at high temperatures.
- The discovery of glass dates back to ancient Mesopotamia around 3500 BCE.

4. Creative task: "Glass Creations""

Provide an assortment of materials like clear plastic, colored cellophane, glue, and markers. Encourage the children to create their own symbolic representation of glass. This could be a stained glass window, a transparent scene, or an abstract glass sculpture. Reflect on the diversity of their creations and how each piece of 'glass' tells a unique story.

5. What Could Be Useful?

Clear plastic sheets, colored cellophane, glue, markers, and any other craft materials for creating glass-inspired artwork.

Learning Outcomes:

- Spatial Awareness and Movement: Develop spatial awareness and movement coordination through icebreaker activities.
- Symbolic Representation: Encourage children to explore and express personal symbols associated with glass. Children will develop the ability to associate symbolic meanings with different types of glass, fostering creativity and personal expression.
- Observation and Daily Life Connection: Children will observe and discuss the presence and significance of glass in their daily environment, developing a practical understanding of its uses.
- Knowledge of Glass: Introduce basic knowledge about the creation and history of glass. Children will gain insights into the manufacturing process, historical background, and versatile applications of glass.
- Creative Expression and Diversity: Foster creative expression through the creation of symbolic glass art. Children will express their creativity by crafting unique representations of glass, appreciating the diversity of interpretations within the group.
- Fine Motor Skills: Enhance fine motor skills through the creative task of making glass-inspired artwork.
- Reflection and Storytelling: Children will reflect on their creative choices, providing an opportunity for verbal expression and storytelling about their symbolic glass creations.
- Appreciation of Artistic Diversity: Children will recognize and celebrate the unique interpretations of glass within their peer group, fostering an appreciation for artistic diversity.

GROUNDED IN EARTH'S EMBRACE

1. Icebreaker: "Earth Stomp"

Feel the solid ground beneath your feet as we engage in an Earth stomp. When the leader signals:

- Gentle Tremor: Slightly tap your feet to represent a gentle tremor.
- Steady Foundation: Stand firm, embodying the stability of the earth.
- Mountain Pose: Raise your arms like mountain peaks, reaching for the sky.

To close, share your sensations during this Earth stomp experience.

"Earth's Emotions"

Let's explore the emotions of the Earth. Assign each child an emotion related to a natural phenomenon:

- Joy (Sunshine): Radiate warmth and happiness.
- Calm (Blue Sky): Move slowly, embodying tranquility.
- Excitement (Wind): Flutter around like a playful breeze.
- Serious (Mountains): Stand tall and sturdy like mountains.

Children take turns expressing their assigned emotion, and others guess which Earth element they represent.

2. Questions for Children:

- What images come to your mind when you think about the word "earth"?
- How does it feel to stand or walk barefoot on the ground?

- What are some sounds associated with nature or the earth?
- Can you think of any magical stories or elements related to the earth?
- Why is it important to take care of the earth?
- What are your favorite outdoor activities that connect you with the earth?

3. Did You Know That...?

The earth is our home, composed of land, water, and air. It provides the foundation for life and sustains a rich diversity of ecosystems, from dense rainforests to icy tundras, each supporting unique forms of life.

4. Creative task: "Earth Collage"

Provide materials like colored paper, magazines, glue, and markers. Ask the children to create a collage representing the Earth's diverse elements. They can include symbols of different seasons, landscapes, and even hidden treasures beneath the Earth's surface.

Learning Outcomes:

- Connection and Stability: Experience the grounded feeling of earth through the Earth stomp.
- Communication and Connection: Share personal stories to enhance understanding and connection.
- Environmental Awareness: Learn about the importance of caring for the earth and nature.
- Creativity and Expression: Express appreciation for the earth through the creation of an earth collage.

Let's celebrate the solid ground beneath us, the source of life and inspiration—the nurturing embrace of our beloved Earth!

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TIME TRAVELERS - UNVEILING THE PAST AND IMAGINING THE FUTURE

1. Icebreaker: "Chrono Charades"

Let's kick off our time-traveling adventure with a game of Chrono Charades. Each child portrays a historical figure or an object from the past or future without speaking, and others try to guess who or what they represent. This encourages creativity and introduces them to different periods in time.

2. Questions for Children:

- Who are some famous historical figures?
- What inventions from the past do we still use today?
- Can you name a significant event from history that changed the world?
- How do you think people in the future might live?
- If you could time travel, where and when would you go?

3. Did You Know That...?

- Time Travel Dreams: Did you know that people have been dreaming about time travel for a very long time? Even ancient stories and legends talk about magical ways to travel to the past or the future!

- Time Travel in Your Sleep: Did you know that when you dream at night, it's a bit like time travel for your brain? You can visit all sorts of places and have adventures while you're safely tucked into bed!

4. Creative task: "Time Capsule Creation"

Now that we've explored the past and glimpsed the future, it's time to create a time capsule. Each child contributes an item or a letter that represents their present. They can use recycled materials to decorate and personalize their capsules.

5. What Could Be Useful? (Materials Needed):

- Recycled containers or boxes: For the time capsules.
- Old magazines, newspapers: To cut out pictures or headlines representing the current time.
- Markers, crayons, or paint: For decorating and personalizing.
- Scrap fabric or paper: For wrapping and securing the time capsules.

Learning Outcomes:

- Historical Awareness: Children learn about significant historical events and figures.
- Imagination: They engage in creative thinking by imagining the future.
- Environmental Consciousness: By using recycled materials, they understand the importance of sustainability.
- Expression: The creative task allows them to express their unique ideas and perspectives.
- Communication: Charades and discussions encourage verbal and non-verbal communication.

Embark on a whimsical journey through time, where the past, present, and future converge in the enchanting realm of time travelers' quests!

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ICE CREAM WONDERLAND
A DELICIOUSLY CREATIVE ADVENTURE

1. Icebreaker: "Scoop Relay"

Let's dive into the sweetness of our snap with a Scoop Relay! Divide the kids into teams, and using recycled materials like paper or fabric, they race to create the tallest ice cream cone. This lively activity warms up their creative muscles.

2. Questions for Children:

- How is ice cream made?
- Name as many different ice cream flavours as you can.
- What is the history of ice cream?
- What images come to your mind when you think about the word "ice cream"?
- How does your favorite ice cream flavor make you feel?
- Can you recall any memorable experiences involving ice cream?
- If ice cream could have magical properties, what would they be?
- What role does ice cream play in celebrations or special occasions?

3. Did You Know That...?

Ice cream is a frozen dessert enjoyed worldwide. Its origins can be traced back to ancient civilizations, and it has evolved into a myriad of flavors and forms.

4. Creative task: "Sundae Sculptures"

Now, let's turn our attention to the creative centerpiece – Sundae Sculptures! Using recycled materials like cardboard, paper, and plastic, the kids craft their own ice cream sundaes, complete with toppings and imaginative flavors. This activity allows them to express their artistic flair.

5. What Could Be Useful? (Materials Needed):

- Cardboard or paper: For the base of the sundae.
- Recycled fabric or cotton balls: To create the ice cream scoops.
- Old magazines or colored paper: For toppings like fruits, sprinkles, or nuts.
- Empty plastic containers or lids: As bowls or cones for their creations.
- Glue, scissors, markers: Basic crafting tools to bring their sundaes to life.

Learning Outcomes:

- Creativity: Children unleash their creativity by designing unique ice cream sundaes.
- Culinary Awareness: They learn about the origin and diversity of ice cream.
- Fine Motor Skills: Crafting and assembling the sundaes enhance fine motor skills.
- Teamwork: The relay fosters teamwork and friendly competition.
- Resourcefulness: The use of recycled materials promotes resourceful thinking.

Indulge in the sweet symphony of ice cream, where every scoop tells a tale of joy, flavor, and delightful moments frozen in time!

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TRAFFIC TRAILS - A RECYCLED ADVENTURE ON THE ROADS

1. Icebreaker: "Paper Car Rally"

Start our traffic-themed snap with a Paper Car Rally. Kids get into the creative driver's seat by making their own paper cars from recycled materials. Then, they can race them or organize a mini parade, introducing each car.

2. Questions for Children:

- What are the different types of vehicles you see on the road?
- How do traffic lights work?
- What are some road signs, and what do they mean?
- Can you name different modes of transportation?
- Why is it essential to follow traffic rules?

3. Did You Know That...?

In many cities, traffic lights were initially operated manually. Policemen would stand on platforms and control the lights, switching them based on the flow of traffic. Automated signals became widespread later on.

4. Creative Task: "Cityscape Collage"

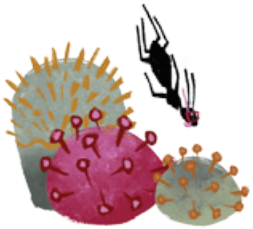
Time to build a bustling city! Using recycled materials like cardboard, paper scraps, and bottle caps, the kids create a vibrant cityscape. They design roads, traffic signals, and buildings, reinforcing their understanding of a city's layout.

5. What Could Be Useful? (Materials Needed):

- Cardboard boxes: For the base of the city.
- Paper scraps: To create colorful buildings and road signs.
- Bottle caps: Ideal for crafting miniature cars or traffic lights.
- Old magazines or newspapers: Cutouts for additional city details.
- Glue, scissors, markers: Basic tools for construction and decoration.

Learning Outcomes:

- Traffic Education: Understanding various aspects of traffic, rules, and road signs.
- Fine Motor Skills: Crafting paper cars and city elements hones fine motor skills.
- Spatial Awareness: Designing a cityscape enhances spatial understanding.
- Teamwork: Collaborating on the city project promotes teamwork.
- Environmental Awareness: Emphasis on recycling materials fosters eco-friendly habits.



LOBSTER EXPEDITION
DIVE INTO THE SNAP!

1. Icebreaker: "Pinch & Scuttle"

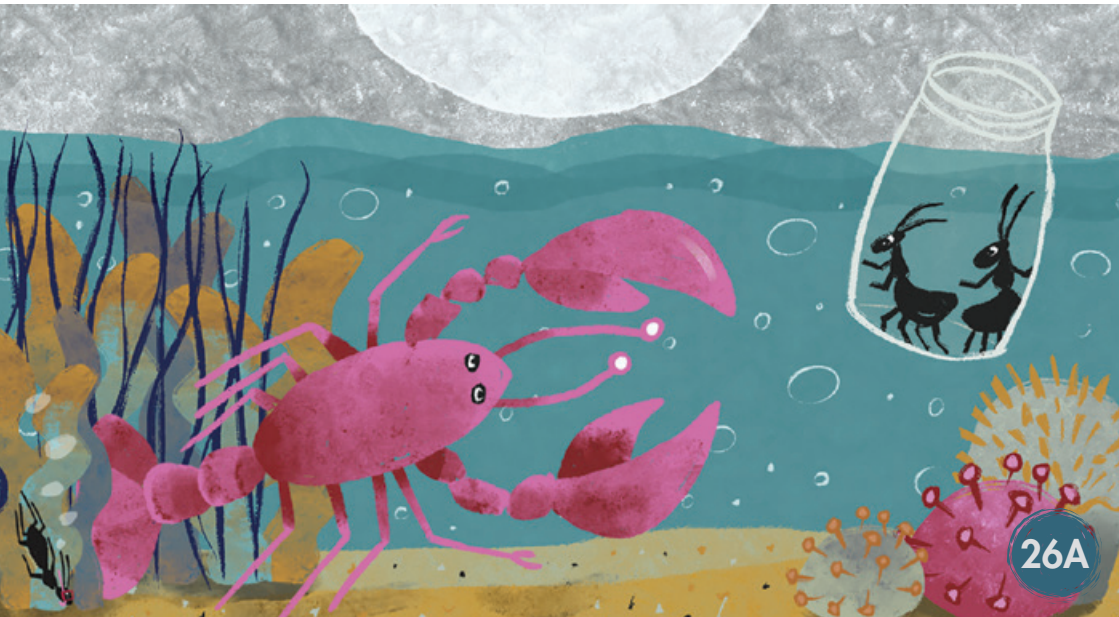
Embrace the lobster theme by playing "Pinch & Scuttle." Kids act like lobsters, using their hands as claws. They can crouch, 'pinch' and 'scuttle' around, imitating the playful movement of lobsters. This not only introduces them to the theme but also gets them moving.

2. Questions for Children:

- How do lobsters communicate with each other?
- Why are lobsters often red when cooked?
- What do lobsters eat?
- How do lobsters defend themselves?
- Can lobsters live in both saltwater and freshwater?

3. Did You Know That...?

Lobsters have a remarkable ability to regenerate lost limbs. If a lobster loses a claw, it can grow a new one when molting. This incredible feature helps them adapt to changes in their environment.



4. Creative Task: "Lobster Shell Sculpture"

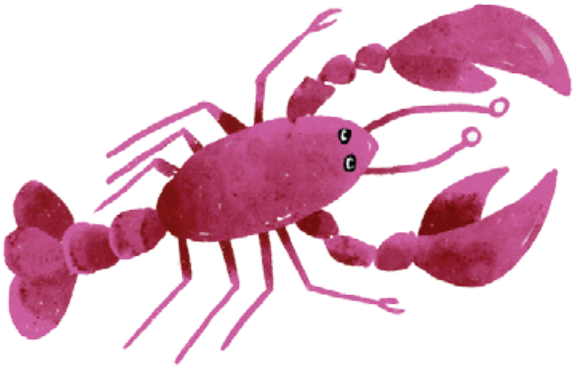
Time to get creative! Using recycled materials like egg cartons, cardboard, and colored paper, children craft their lobster shells. They can paint them vibrant colors and add googly eyes for a fun touch.

5. What Could Be Useful? (Materials Needed):

- Empty egg cartons: For the lobster's body.
- Cardboard: As a base for the craft.
- Colored paper, markers, and paint: For decorating the lobster shell.
- Googly eyes or buttons: To add character to the lobsters.
- Glue, scissors, and any other decorative materials: Basic tools for construction and decoration.

Learning Outcomes:

- Biology Exploration: Understanding the basic biology and characteristics of lobsters.
- Creativity: Expressing creativity through crafting lobster shells.
- Fine Motor Skills: Handling small craft materials refines fine motor skills.
- Environmental Awareness: Encouraging the use of recycled materials promotes eco-friendly habits.
- Curiosity: Encouraging kids to ask questions and explore the fascinating world of lobsters.



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SPICE QUEST
A JOURNEY INTO AROMATIC WORLD

1. Icebreaker: "Spice Scramble"

Engage the children with the "Spice Scramble" game. Children stand in a circle, with one in the middle in the beginning. The one in the middle calls out a spice, and everyone who recognises the spice must switch spots with someone else. One is always left without a spot, and they will call out the next spice.

2. Questions for Children:

- What is your favorite spice, and why?
- Can you name three sweet spices and three savory spices?
- How are spices used in different cultures around the world?
- Why were spices historically considered valuable?
- Can you think of any health benefits associated with certain spices?

3. Did You Know That...?

Spices were once so valuable that they were used as currency, and some explorers set sail to find new spice routes. This historical tidbit adds a dash of adventure to the world of spices.

Spices are the aromatic treasures of the culinary world, adding depth and richness to dishes. They have been valued throughout history for their flavors and medicinal properties.

4. Creative Task: "Spice Scented Sachets"

Let's get crafty with scents! Children create spice-scented sachets using recycled fabric scraps. They fill these sachets with a mix of spices like cinnamon, cloves, or lavender. This task not only taps into their creativity but also introduces them to the delightful world of aromas.

5. What Could Be Useful? (Materials Needed):

- Recycled fabric scraps or old handkerchiefs: For creating the sachets.
- spices: Cinnamon sticks, cloves, lavender, or any aromatic spices.
- String or rubber bands: To tie the sachets securely.
- Markers or fabric paint: For decorating the sachets.

Learning Outcomes:

- Cultural Awareness: Understanding the diverse use of spices in different cultures.
- Sensory Exploration: Exploring various scents and textures of spices.
- Creativity: Expressing creativity through crafting scented sachets.
- Historical Perspective: Learning about the historical significance of spices.
- Fine Motor Skills: Engaging in the hands-on task of creating spice sachets refines fine motor skills.

Savor the spice symphony, where each flavor tells a tale, and the aroma of culinary wonders fills the air in a captivating sensory spice shuffle!

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INVESTIGATIVE EXPLORERS: UNLEASH YOUR INNER DETECTIVE

1. Icebreaker: "Mystery Charades"

Invite the children to play "Mystery Charades." In this game, each child mimics an action related to detective work, such as magnifying glass inspection, searching for clues, or stealthy walking. Others guess the detective action. This icebreaker sets the mood for investigative fun.

2. Questions for Children:

What images come to your mind when you think about the word "investigators" or "detectives"?
How do investigators use clues to solve mysteries?
Can you name three tools detectives use to solve mysteries?
Can you recall a favorite detective story or character?
If you were an investigator, what kind of mystery would you want to solve?
What skills do you think are crucial for being a successful investigator?
How do investigators contribute to making the world a safer place?

3. Did You Know That...?

Investigators, or detectives, are skilled individuals who use logic, observation, and critical thinking to solve mysteries. They play a vital role in law enforcement and justice.
Detectives often use fingerprints to solve crimes. Each person's fingerprints are unique, making them an excellent tool for identification.

4. Creative Task Option 1: "DIY Detective Kits"

Children create their own detective kits using recycled materials. This can include making a detective badge, crafting a paper magnifying glass, and repurposing old notebooks for their detective journals. This hands-on task encourages imaginative play and resourcefulness.

4. Creative Task Option 2: "Mystery Map Masterpiece"

Create a map illustrating the key elements of a mystery, including clues, suspects, and the resolution. Use symbols and colors to represent different aspects.

5. What Could Be Useful? (Materials Needed):

- Cardboard: For creating detective badges.
- Plastic magnifying glasses: Recycle or repurpose if available.
- Old notebooks or paper: For detective journals.
- Markers, stickers, and other decorations: To personalize their detective kits.
- Old paper for maps.

Learning Outcomes:

- Creativity: Expressing creativity through the creation of detective kits.
- Teamwork: Understanding how investigators collaborate to solve mysteries.
- Resourcefulness: Finding new purposes for recycled materials.
- Attention to Detail: Emphasizing the importance of paying attention to details.
- Imaginative Play: Encouraging children to immerse themselves in the world of detective stories.

Unravel the threads of mystery, where every clue leads to an exciting discovery, and the detective dash unveils the secrets of investigative intrigues!

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UNLEASHING THE MINDS: ARTIFICIAL INTELLIGENCE ADVENTURE

1. Icebreaker: "Robo-Charades"

Engage the children in a game of "Robo-Charades." Each child takes turns mimicking a robot's movements or actions, and the others guess what the robot is doing. This fun icebreaker sets the tone for an exploration of artificial intelligence.

2. Questions for Children:

- What comes to your mind when you hear the term "Artificial Intelligence"?
- Can you name a task that robots or AI can do better than humans?
- How do you think AI learns and makes decisions?
- Do you think robots can have feelings? Why or why not?
- What are the benefits and challenges of using AI in our daily lives?
- Can you think of any AI-powered devices or technologies you use?
- If you could create a friendly AI robot, what tasks would it help you with?

3. Did You Know That...?

Artificial Intelligence refers to machines or computer systems that can perform tasks that typically require human intelligence. AI can be found in various aspects of our lives, from voice assistants in our phones to advanced robotics used in industries.

4. Creative Task: "Robot Design Challenge"

Children embark on a creative journey to design their own robots using recycled materials. They can craft robot bodies, create facial expressions, and design features that represent tasks their robots can perform. This task fosters imagination and resourcefulness.

Creative Task: "AI Vision Board" (as an extra task during the robot design challenge)

Create a vision board illustrating your ideas about the future of artificial intelligence. Use images and words to represent the possibilities and concerns.

5. What Could Be Useful? (Materials Needed):

- Cardboard boxes, paper rolls, and plastic containers: For crafting robot bodies.
- Bottle caps, buttons, and small items: For decorating and creating features.
- Markers, paint, and stickers: To add color and personality to their robots.
- Glue and scissors: For assembling the robot parts.

Learning Outcomes:

- Creativity: Expressing creativity through the design of unique robots.
- Critical Thinking: Reflecting on the role and impact of AI in society.
- Resourcefulness: Finding new purposes for recycled materials.
- Imagination: Encouraging children to envision robots with specific functions.
- Understanding Technology: Introducing basic concepts of artificial intelligence in a playful manner.
- Communication and Connection: Share thoughts on AI to enhance understanding and connection.
- Futuristic Imagination: Discuss the potential applications and impacts of AI on the future.
- Creative Expression: Craft an AI vision board to visually represent ideas and perspectives.

Navigate the circuits of artificial intelligence, where binary boogie meets algorithmic shuffle, and the robot rendezvous unveils the wonders of AI exploration!

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CITYSCAPE MARVELS: NIGHTTIME ADVENTURE SNAP

1. Icebreaker: "City Nightlife Snapshot"

Let's bring the magic of the city at night to life! In this icebreaker, children create a group still image by one at a time going to a predefined spot, choosing a position, and saying what they represent in the picture. Each new person adds something to the scenery. At the end, a real photo can be taken of the live art pose. Children can mimic different elements of a city at night such as streetlights, cars, or people walking.

2. Questions for Children:

- What changes in the city when the sun goes down?
- Can you name different things you see in the city at night?
- How do the lights in the city contribute to its atmosphere?
- Why do you think cities are often busier at night?
- What are some sounds you associate with the city at night?
- If you could create a fantastical city at night, what features would it have?
- How do nighttime cityscapes make you feel?
- What activities do you imagine people are doing in the city at night?

3. Did You Know That...?

Nighttime cityscapes are mesmerizing with illuminated buildings, bustling streets, and unique sounds. Cities come alive with a different energy when the sun goes down.

Cities at night are a fascinating tapestry of lights, each telling a unique story. Streetlights illuminate our paths, and buildings glow with life. Many cities around the world are famous for their spectacular nighttime views, showcasing the beauty of human creativity.

4. Creative Task: "City Night Diorama"

Children embark on a creative journey to craft their version of a city at night using recycled materials. They can build buildings, streetlights, and even tiny inhabitants. This task encourages them to think about the dynamics of a city after dark.

5. What Could Be Useful? (Materials Needed):

- Cardboard boxes: For creating the base of the city.
- Toilet paper rolls: For constructing buildings and towers.
- Colored paper, markers, and stickers: To add details and decorate.
- Small LED lights or battery-operated tea lights: To simulate city lights.

Learning Outcomes:

- Creativity: Expressing creativity through the creation of a cityscape.
- Observation: Noticing and replicating features of a city at night.
- Collaboration: Working together on a group project.
- Environmental Awareness: Using recycled materials to craft a city.
- Understanding Urban Life: Exploring the dynamics of a city, day and night.
- Immersive Exploration: Dive into urban soundscapes to connect with the sensory aspects of the city at night.
- Artistic Expression: Craft a city nights diorama to visually represent imaginative ideas.

Explore the enchanting city by night, where skyscraper stretch meets streetlight sway, and the traffic jam freeze captures the magic of nocturnal urban wonders! Feel free to use soundscape music as an atmosphere-creating tool.

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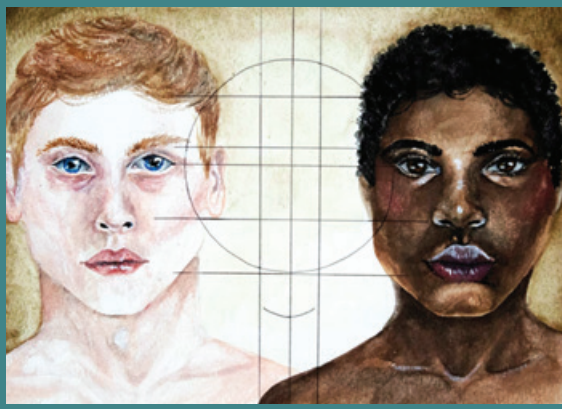

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