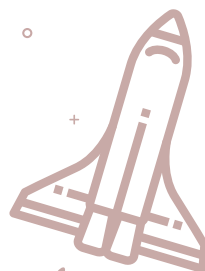
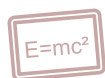


STEM
School
Label



STEM SCHOOL LABEL BEST PRACTICES AUGUST 2020



STEM School Label
EXPERT



STEM School Label
PROFICIENT



STEM School Label
COMPETENT



+



3

2

1



+



Aa



ABOUT THE STEM SCHOOL LABEL

Having recognised the importance of promoting STEM studies in schools, a number of organisations specialised in STEM education have joined forces to address the current lack of pupils embarking on STEM studies and STEM careers in a true multi-stakeholder approach. This joint commitment gave birth to the STEM School Label project.

Within this project, supported by the Erasmus+ programme, school representatives can evaluate their school's performance in STEM via an online self-assessment tool according to a set of criteria defining a STEM School.

This self-assessment tool identifies required areas of development and provides suggestions of resources for applicant schools to improve their STEM activities at school level. The purpose of this strategic partnership project is to enable as many schools as possible to benefit from the STEM School Label, by also engaging the support of Ministries of Education.

Publisher:

European Schoolnet (EUN Partnership AISBL)
Rue de Trèves 61
B-1040 Brussels

Please cite this publication as:

Billon, N., Myrtsioti, E., Oliveira, G., Carmo, F., Vaivadienė, E., Iuliani, E., Bernier, F., Laušević, P., (2020) STEM School Label best practices (August 2020). European Schoolnet, Brussels.

Keywords:

Science, Technology, Engineering and Mathematics education (STEM education); STEM Schools; STEM School strategy; STEM School Label. planetology, Data from research.

Authors:

Noëlle Billon and Eleni Myrtsioti (European Schoolnet), Gisela Oliveira and Filipe Carmo (Ciencia Viva), Eglė Vaivadienė (National Agency for Education), Elena Iuliani and François Bernier (Maison pour la science en Alsace), Petar Laušević (Centre for the Promotion of Science).

Design/DTP:

Mattia Gentile (European Schoolnet)

ISBN

9789492913944

Picture credit:

European Schoolnet

Published in August 2020. The work presented in this document has received funding from the Erasmus+ Programme of the European Union the STEM School Label (Grant Agreement N. 2017-1-BE02-KA201-034748). The content of the document is the sole responsibility of the organiser and it does not represent the opinion of the European Commission (EC), and the EC is not responsible for any use that might be made of information contained.

This report is published under the terms and conditions of the Attribution 4.0 International (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>).



EXECUTIVE SUMMARY

This publication presents a collection of best practices which were highlighted by the STEM School Label project from the launch of the online platform in April 2019 up to July 2020. The STEM School Label project developed a framework where schools can evaluate their performance in STEM via an online self-assessment tool, according to the set of criteria defining a STEM School. This self-assessment tool helps schools identify required areas of development and provides suggestions of resources for applicant schools to improve their STEM activities at school level.

This initiative responds to the fact that STEM education has become a priority in European countries and strategies are being developed to improve teaching and learning and the uptake of studies and careers in STEM. The information provided in this report is based on a co-constructive process conducted with the partners of the project. The report is written within the framework of the STEM School Label project, co-funded by the Erasmus+ Programme of the European Union (Grant Agreement No. 2017-1-BE02-KA201-034748) and corresponds to Output 8 of the project.

This report aims to show how the STEM School Label, since its launch in April 2019 up to July 2020, has contributed to highlight and further develop STEM strategies of schools at European level.

During these 16 months of experience, 1,880 schools joined the STEM School Label. 545 schools received the Competent Label and seven reached the Proficient Label. As first concrete results from the project, the schools joining the initiative highlighted that the STEM School Label strongly encourages collaborations between schools and with other organisations. It also provides them with a framework to develop their own STEM strategy at the school level and so helps them improve their own practice. Finally, it has also been shown by the numerous good examples of Case Studies and School Practice Evidence submitted on the platform and in the networking events that were organised, that the STEM School Label encourages sharing experiences about STEM education among schools.



TABLE OF CONTENTS

Introduction.....	1
Rationale	1
Aim of the report	1
1) The STEM School Label, encouraging collaboration among schools and with other organisations	2
A tool bringing forward the STEM activities carried out by schools	2
The STEM School Label, embraced by organisations over Europe and beyond within their activities	3
A platform which allows experiences to be shared among schools.....	4
2) The STEM School Label, a tool helping schools to improve their own practice ..	7
3) Collection of best practices from Ambassador STEM Schools.....	9
Selection of Case Studies	9
Selection of school Practice Evidence.....	11
4) The STEM School Label, Organising conferences and networking events	17
Capacity-building programme organised for Ambassador STEM Schools.....	17
STEM School Label competition during the STEM Discovery Campaign 2020	21
The STEM School Label High-Level Event.....	22
Feedback received from the event	24
Conclusions: What have we learned and what is the way forward?.....	26

LIST OF FIGURES

Figure 1: Results of December poll on STEM School Label	5
Figure 2: SPW33 – Images from the event	19
Figure 3: Agenda of the STEM School Label High-Level Event: 25-26 June 2020	23
Figure 4: Pictures from the STEM School Label High-Level Event	23
Figure 5: Picture from the STEM School Label High-Level Event Open Discussion session.....	23

INTRODUCTION

Rationale

This publication presents best practices which were collected via the STEM School Label project. The STEM School Label project developed a framework where schools can evaluate their performance in STEM via an online self-assessment tool, according to the set of criteria defining a STEM School. This self-assessment tool helps schools identify required areas of development and provides suggestions of resources for applicant schools to improve their STEM activities at school level.

This initiative responds to the fact that STEM education has become a priority in European countries and strategies are being developed to improve teaching and learning and the uptake of studies and careers in STEM. The information provided in this report is based on a co-constructive process conducted with the partners of the project. The report is written within the framework of the STEM School Label project, co-funded by the Erasmus+ Programme of the European Union (Grant Agreement No. 2017-1-BE02-KA201-034748) and corresponds to Output 8 of the project.

Aim of the report

This report aims to show how the STEM School Label, since its launch in April 2019 up to July 2020, has contributed to highlight and further develop STEM strategies of schools at European level. During these 16 months of experience, 1,880 schools joined the STEM School Label. 545 schools got the Competent Label and seven reached the Proficient Label.

As first concrete results from the project, the schools joining the initiative highlighted that the STEM School Label strongly encourages collaborations between schools and with other organisations. It also provides them with a framework to develop their own STEM strategy at the school level and so helps them improve their own practice. Finally, it has also been shown by the numerous good examples of Case Studies and School Practice Evidence submitted on the platform and in the networking events that were organised, that the STEM School Label encourages sharing experiences related to STEM among the different schools.

1) THE STEM SCHOOL LABEL, ENCOURAGING COLLABORATION AMONG SCHOOLS AND WITH OTHER ORGANISATIONS

A tool bringing forward the STEM activities carried out by schools

Since the launch of the STEM School Label platform, we have seen that STEM School Label contributes to bring to light the STEM activities conducted by schools. This has happened at different levels depending on the countries.

For example, in Spain, Escola Joan Miró, Ambassador STEM School in Barcelona, was showcased in three newspapers regarding its involvement in the STEM School Label, including *Revista Digital Valles*, *Ajuntament de Canovelles*, and *Alacarta*. This visibility not only helps raise awareness about the STEM School Label but, more importantly, it helps schools find collaborations with companies that wish to take part in projects dealing with science and technology in education.



Partners of the STEM School Label¹ also highlighted the visibility provided by the STEM School Label for the schools in their country.

As reported by the Centre for the Promotion of Science in Serbia, the STEM School

Label turned out to be helpful in making schools more visible, especially schools in small municipalities. Some of the local media (Web portals, daily press, weekly magazines and TV and radio channels) such as *Zajčarska hronika*, *Zajčar Online*, *Timočka Zamedia*, *Glas Zajčara*, *Radio Magnum*, *"Rusko slovo"*,² The Public Broadcasting Service of Vojvodina, *"Naše mesto"*, *025info*, were especially active in promoting the activities of the three Ambassador STEM Schools in Serbia. Furthermore, some schools became more attractive as project partners and were invited to collaborate in various project applications. Finally, the feedback received by schools when carrying out the self-evaluation was used for self-improvement which could have an impact on upcoming evaluation of schools by the Ministry of Education of Serbia.

In Lithuania too, according to the National Agency for Education, the STEM School Label has allowed schools to become more visible and recognised among themselves as relevant and useful partners in STEM education. The STEM School Label promotes this visibility in many ways, through the gallery of School Practice Evidence or the Forum for example. By displaying the label on their website, schools have also become more visible and are evaluated by local government as leaders who educate children in a modern way. As an example,

1 More information about STEM School Label partners under: <https://www.stemschoollabel.eu/partners>

2 Some examples of the dissemination carried out by local media can be found under the following links: <http://zajecarskahronika.rs/zajecarskoj-gimnaziji-oznaka-stem-school-label-proficient/>, <https://zajecaronline.com/zajecarska-gimnazija-dobila-novo-priznanje/>, <https://www.timocka.rs/vesti/novo-priznanje-za-zajecarsku-gimnaziju/>

Siauliai City Municipality, having learned that the school Siauliai Kindergarten “Pasaka” had received the Label, involved them in the plan to promote innovative forms of education, and it plans to establish a STEM centre in the school. Following the communication and collaboration on both national and international levels, schools also became more visible and known to one another as appropriate and useful partners in the STEM field. As an example, the school Alytus Jotvingiai Gymnasium successfully applied to the Erasmus+ K101 programme with the project “*Promoting and Involving STEAM Education in Creating an Innovative Culture at School*” (No. 2020-1-LT01-KA101-077744). The project will be implemented from 1 December 2020 to 30 November 2022. By participating and sharing experience on the platform, schools became visible at the national level as well: their STEM practices have been evaluated by the National Agency for Education and the best schools have been involved in new networks.³ Moreover, as the General Curriculum in Lithuania is being updated, and one of the priorities is strengthening of STE(A)M activities, the best school practices uploaded on the STEM School Label will be used to develop methodological material to accompany the General Curriculum.

In France, according to the Maison pour la Science d’Alsace, primary and middle schools are usually not involved in networks. However, platforms such as the STEM School Label offer them fantastic opportunities to enable other schools to benefit from their experiences and to

improve what they do, by realising that many other schools have been working on related topics with different but often complementary approaches. Besides, when it is realised that other schools have related interests, larger, collaborative projects are likely to be developed. One example of this is the initiative entitled “Collèges-pilotes” network, which was initiated by the foundation *La main à la pâte*⁴ four years ago. The participating schools are engaged in interdisciplinary science projects, usually involving several classes. Although each school has done very good work, there have been relatively few exchanges among them. By inciting them to register for the STEM School Label, there is a real possibility of creating a wide network of schools deeply engaged in science projects.

In Portugal, according to Ciencia Viva, the STEM School Label platform has also been a great way to give visibility to schools and, undoubtedly, an opportunity for each school to improve its STEM strategy, through access to resources and tools to engage students, teachers and the entire school community in the same goal of improving STEM education. An example of this visibility can be seen in the news article published by the Ministry of Education in Portugal about Agrupamento de Escolas de Alcanena, when it received the Proficient Label.⁵

The STEM School Label, embraced by organisations over Europe and beyond within their activities

3 Such as the national network: [STEAM Schools Net](https://www.steam-schools.net/).

4 Website of the foundation La main à la pâte <https://www.fondation-lamap.org/>

5 Full article under: <https://www.dge.mec.pt/noticias/agrupamento-de-escolas-de-alcanena-e-primeira-escola-em-toda-europa-receber-o-selo-de>

Since the beginning of the project in September 2017, the STEM School Label has been embraced by other organisations over Europe. These organisations have become associate partners and they are supporting the promotion of the initiative to schools over Europe and beyond.

For example, during the yearly fixture EMINENT (Warsaw, November 6-7) European Schoolnet brought together over 140 participants to explore innovation culture at school level. Jeremy Buckle, event director at YoMo (GSMA's Youth Mobile Festival), took part as host explaining the relationship between the STEM School Label and GSMA's network of organisations within the session entitled "Multi-stakeholder partnerships enabling innovation at school level". In Catalonia, out of 400 schools in contact with YoMo, 364 have yet to engage in the STEM School Label.

"STEM School Label is really exciting for us [...] our goal is to make sure all schools have access to the STEM School Label and use it as a gateway to YoMo."

As he explains, their goal is to "ensure the aspirations created are followed up with resources, with links to businesses and industries" to reinforce the support in the network provided by GSMA. The STEM School Label would be an extremely valuable asset to GSMA as "it can help to provide us with the privileged change we are looking for." In Belgium, the Chamber of Commerce and Industry Antwerpen-Waasland has also used the STEM School Label as a starting point for collaboration

with industries via their project "In2STEM"⁶ which aims to help secondary schools to develop internationally leading STEM education and thus meet the needs of industry for a larger influx of suitable profiles. As Kathleen Rabau, project coordinator at Voka - Chamber of Commerce and Industry Antwerpen-Waasland explained during the STEM School Label High-Level Event on 26 June 2020, their goal is "to compile a toolkit for schools on how to become a state-of-the-art STEM School". She also mentioned that

"The STEM School Label provides a common language" and "an international standard which gives more value to the label and the process."

Finally, according to her, "STEM School Label also serves as a framework for existing initiatives", "It initiates changes for the better by helping to see for which criteria we need to do more."

This high level of engagement and interest from other organisations and projects about the STEM School Label is also noticeable when looking at the interactions on the STEM School Label Twitter account, which in only 16 months reached over 1,000 followers.

A platform which allows experiences to be shared among schools

Besides the visibility and the interest brought by the STEM School Label initiative, this initiative provides various opportunities to share experiences among schools.

6 More information about the project In2STEM can be found under this link: <https://www.voka.be/in2stem-voor-bedrijven>

Sharing experiences: an interest underlined by schools themselves

According to the registered participants on the STEM School Label and following the poll that was published in December 2019, and as shown in Figure 1 below, the main motivation for participating in the STEM School Label is to “Share our school’s experience with others and learn from other schools’ experience.” This motivation was considered, by 50% of the 66 participants who answered the poll, the most prominent reason to participate in the STEM School Label.

In comparison, receiving information about how to improve STEM activities was considered, by 24% of the participants, the second most important reason to join the STEM School Label. As for the third reason, participants chose “Finding out where we stand as a STEM School”, selected by 12% of the participants. The remaining two options were split between “Obtaining the Label to showcase it to other schools and external partners” (6%) and “Getting more students interested in STEM” (5% and 3% respectively).

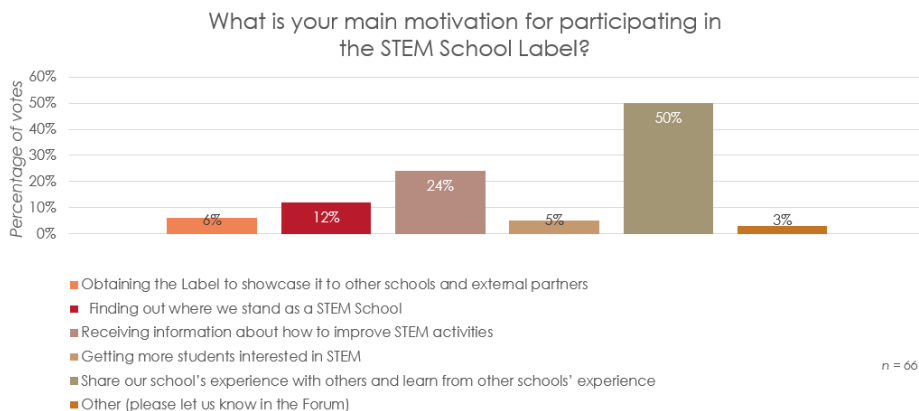


Figure 1: Results of December poll on STEM School Label

The gallery of School Practice Evidence and Case Studies, a database for sharing practices among schools

Between April 2019 and July 2020, over 880 Case Studies were submitted by schools on the STEM School Label platform as well as more than 4,700 items of School Practice Evidence. According to the Centre for the Promotion of Science in Serbia, schools appreciated the big resource database provided by the STEM

School Label. The fact that all activities are reviewed by a Language Coordinator before being published is perceived as a quality assurance, so the resources are trusted. Also, having its STEM School Practice Evidence published on the STEM School Label platform is seen as a reward for a schools hard work, which turned to be quite motivating for many teachers and school representatives carrying out the self-evaluation of their school.

The Forum, an opportunity to exchange among peers and to improve one's STEM strategies

The STEM School Label forum area also provides an opportunity for exchange of good practices, experiences and ideas related to STEM strategies at the school level. The STEM School Label encourages school representatives and contributors to network, interact and address the common concerns they may have. The aim of this online discussion board is to provide the opportunity for users to engage in thoughtful, constructive discussion with their peers, and to give and receive feedback.

With over 10,640 posts published and 565 users contributing to the forum between April 2019 and July 2020, the forum has proved to be a wonderful opportunity to share external links about STEM, and e-Twinning projects, and to get to know colleagues in other schools and other European countries better. It has allowed more genuine and simple human interaction that can be the start of great national and international projects.



2) THE STEM SCHOOL LABEL, A TOOL HELPING SCHOOLS TO IMPROVE THEIR OWN PRACTICE

As part of the project, 20 schools in Portugal, Lithuania, France, Serbia, Spain, Greece and Turkey have been appointed **Ambassador STEM Schools**. European Schoolnet (EUN) worked with and supported Ambassador STEM Schools during the academic year 2019-2020 to help them go from their current label to the next. Besides, Ambassador STEM Schools have aimed to serve as good example for other schools in Europe.

- allow them to visit Ambassador Schools and observe STEAM lessons and activities and discuss teaching methods and the equipment used
- participate in events and workshops organised for teachers and students from different schools
- allow them to participate in the international events that are organised by Ambassador STEM Schools in the frame of Erasmus+ projects.⁷

This Ambassador scheme has proved to be very effective in some countries. According to the National Agency for Education in Lithuania, schools that applied to become STEM Schools and started building their STEM School profile often asked for Ambassador STEM Schools' help or advice. They did so by answering frequently asked questions (e.g. How do we become a STEM School? How do we correctly add evidence to the platform? Which case study is helpful?). Besides, STEAM representatives from different schools of Lithuania asked Ambassador STEM Schools to:

- moderate their STEAM activities and strategy, help with implementation, also documentation

The STEM School Label also contributes to support schools in building their own STEM strategy or improving it. Ambassadors STEM Schools have been the first ones to report this. For example, Mladen Sljivovic, a physics teacher, from Gimnazija Zaječar, Serbia:

"In order to do the best we can for students and teachers, we are always looking for opportunities to improve ourselves. STEM School Label is really all about that, improving schools to help them bring out the best in their students. There is a great opportunity provided on the platform to share activities and learn from other schools via submitted School Practice Evidence or on the

⁷ Some examples of this participation can be found in the following events:

- National conference "STE(A)M model in Lithuanian education: is everything really that simple?" organised by Vilnius Gedimino technikos universiteto inžinerijos licėjus (<http://www.svietimonaujienos.lt/vgtu-inzinerijos-licejus-inovatyvus-ir-aktyvus-steam-ambasadorius-lietuvoje-ir-europoje/>)
- Workshop "STEAM activities in preschool institution: challenges and opportunities" organised by Šiaulių lopšelis-darželis "Pasaka" (https://pasaka.mir.lt/projektine-veikla-siauliu-lopselyje-darzelyje-pasaka/?fbclid=IwAR0MOOUBE_3461YEyhwc-JUyLFnBaRJFlaz5LclIGFI5gRFxZBKARXTh0)
- National conference "Innovative STE(A)M Education Opportunities In Schools: Challenges and Benefits" organised by Klaipėdos Sendvario gimnazija (https://www.sendvaris.klaipeda.lm.lt/index.php?option=com_content&view=article&id=1499:respublikine-konferencija-inovatyvus-ste-a-m-ugdymo-galimybes-mokykloje-issukiai-ir-teikiama-nauda&catid=30&Itemid=101)

forum. The greatest thing is obtaining an Action Plan based on your current school evidence and status."

As reported by another Ambassador STEM School representative, Laura Bajoriūnė from Šiaulių lopšelis-darželis "Pasaka" (Lithuania), the platform helps in identifying strengths and weaknesses related to the School STEM Strategy and seeing where they should develop their activities further.

"The STEM School Proficient Label gave us the boost in motivation to investigate and improve STEM strengths and weaknesses, involving all the teachers in our institution. By creating a STEM strategy, we realised where our school was succeeding and which areas needed specific intervention. Thanks to the STEM School Label we can now plan a purposeful and effective STEM strategy tailored to our school's needs!"

France
Lithuania
Portugal
Turkey
Greece
Serbia



3) COLLECTION OF BEST PRACTICES FROM AMBASSADOR STEM SCHOOLS

Between April 2019 and July 2020, from the 886 Case Studies that were submitted by schools on the STEM School Label platform, 75 were published and therefore considered good examples that other schools could be inspired by. Besides, from the 4,712 items of School Practice Evidence submitted, 498 were published on the gallery of School Practice Evidence. This evidence provides concrete examples on how schools address the different criteria defining a STEM School. A selection of particularly relevant Case Studies and items of School Practice Evidence that have been submitted by Ambassador STEM Schools and published on the portal, and that can inspire other schools, can be found in this section.

Selection of Case Studies

Case Studies are short reports on a school's past events and activities connected to the different STEM School Label criteria as well as how the school dealt with them. One could say that the Case Studies are stories about activities that lie further in the past but are considered still worth sharing with the community. Following the launch of the platform in April 2019, over 880 Case Studies had been uploaded as of 14 July 2020. Specific examples of particularly relevant Case Study submissions published during the past academic year 2019-2020 can be found below.

1. The Serbian Ambassador STEM School **Gimnazija u Zaječaru** participated in the international workshop *Guidance and Counselling in the School Curriculum* organised by the Euroguidance project (2018-2020), which took place in Bucharest in 2018. During this event, the invited school leaders and representatives discussed examples of best practices on the topic, citing examples from their classrooms. The topics of career development and mentorship are increasingly subjects of study, and educators nowadays are actively trying to raise awareness by providing mentorship to their students on future career paths and explaining at the same time how STEM careers are contextualised with STEM subjects. With the Case Study submission by **Gimnazija u Zaječaru** entitled **"Your subject is important to me"**,⁸ teachers contextualised interdisciplinary STEM education and gave realistic examples to their students, on how knowledge acquired from different disciplines can be applied while practising a profession. The Case Study successfully addressed the criteria "Interdisciplinary instruction", "Contextualisation of STEM teaching", "Collaboration with industry", "Connection with parents/guardians", "Connection with universities and/or research centres", "Connection with local communities" and "Professional development". The supporting evidence

8 <https://www.stemschoollabel.eu/group/admin/case-studies/detail?caseStudyId=557>

was an official publication,⁹ funded by the European Commission

2. The same Ambassador STEM School submitted a Case Study entitled “**A workshop on rubrics**”¹⁰ on the topic of assessment. This Case Study outlines the outcomes of a workshop dedicated to the conceptualisation and creation of assessment rubrics, following participation in Erasmus+ programmes. In addition to paving the way for more innovative assessment methods that can be applied in Project-Based Learning, as opposed to traditional testing methods, this puts into perspective the criteria of “continuous assessment” and “personalised assessment” that are addressed in this submission, and shows how a collective action about those can be coordinated on European level. Additional criteria addressed in this Case Study were “High level of cooperation among staff” and “Professional development”. The supporting evidence submitted for this Case Study was the webpage of the project “Schools of Tomorrow”.¹¹
3. In the Case Study “**STEAM Education’s SWOT 2020**”¹² submitted by **Alytaus Jotvingių Gimnazija**, a junior high school in Lithuania, teachers reflect on how to structure their STEAM strategy in years to come following their nomination as an Ambassador STEM School. Alytaus Jotvingių Gimnazija has shared its commitment to improving its STEAM strategy, by sharing good practices and tools it has developed, such as SWOT analysis tables. This Case Study addresses the criteria “School Leadership” and “Inclusive culture” in order to highlight the actions taken by the school staff in the context of curriculum development and overall management, as well as the embracing and materialisation of ideas by colleagues. The supporting document that was submitted by the school for this Case Study was a presentation¹³ that was originally uploaded on the schools website dedicated to STEAM entitled *Alytaus Jotvingių Gimnazija – Mokykla, Turinti Aiškią Steam Strategiją*.¹⁴
4. Similarly, an excellent example of a Case Study entitled “Thinking schools elements in the learning process”¹⁵ was shared by Šiauliu lopšelis-darželis “Pasaka”, another Ambassador STEM School in Lithuania and the only kindergarten that is part of the Ambassador STEM Schools scheme. In this Case Study, we see how the ‘thinking tools’ developed at the school by the teachers will put into use the space and resources available, incorporating learning strategies in order to nurture and enhance learning from a very

9 <https://www.euroguidance.cz/publikace/cbs-18.pdf>

10 <https://www.stemschoollabel.eu/group/admin/case-studies/detail?caseStudyId=629>

11 <https://schooloftomorrowsoft.blogspot.com/2020/05/rubrics-and-what-do-we-do-with-them.html>

12 <https://www.stemschoollabel.eu/group/admin/case-studies/detail?caseStudyId=674>

13 <http://steam.jotvingiugimnazija.lt/wp-content/uploads/2020/03/SSGG-SWOT-STEAM-2019-2.pdf>

14 <http://steam.jotvingiugimnazija.lt/>

15 <https://www.stemschoollabel.eu/group/admin/case-studies/detail?caseStudyId=127>

young age. The aim is to contribute to students' confidence, enhancing their interest in specific subjects and topics, and to encourage teamwork in an attempt to tackle issues commonly faced at this age such as spontaneous behaviour control. All these skills will contribute to the students developing into well-rounded individuals. The criteria addressed in this Case Study were "Personalisation of learning", "Problem- and Project-Based Learning (PBL)", "Continuous assessment", "Connection with parents/guardians" and "Professional development". The supporting evidence for this Case Study was a compilation of webpages, including a presentation uploaded by the staff on LinkedIn¹⁶ in order to reach more educators, an article published on the Lithuanian portal Švietimo naujienos: Pradžia¹⁷ for educators, and the webpage of the network "Thinking Schools International"¹⁸.

Selection of school Practice Evidence

School Practice Evidence can be any submission further supplemented with files, documents and other materials that serve as proof of the school's answers in the self-assessment form and of its activities related to a specific criterion. The most commonly shared documents include press cuttings, videos, event diaries, photographs, news on websites and social media and certificates of attendance. One could say that the evidence is about the current state

of STEM activities at the school. Following the launch of the platform in April 2019 and the upload of over 4,700 items of School Practice Evidence as of 14 July 2020, particularly relevant pieces of School Practice Evidence that were shared during this past academic year 2019-2020 by Ambassador STEM Schools are highlighted below.

1. In the School Practice Evidence "**Job shadowing in Turkey**"¹⁹ submitted by the Serbian Ambassador STEM School **Gimnazija u Zaječaru**, it is explained how members of the school staff travelled to Turkey as part of an exchange programme in order to get insight into how colleagues in other countries work. The staff gained significant professional and international experience by participating in this Erasmus+ programme. The corresponding School Practice Evidence was an example of good practice by teachers who invest in their professional development by participating in programmes abroad and contribute to the strengthening of cross-border cooperation between schools in different countries. For this reason, it is considered that the School Practice Evidence successfully addressed the criteria "School Leadership", "High level of cooperation among staff", "Connection with other schools and/or educational platforms" and "Professional development". Emphasis is also placed on the connection and further development of educational platforms,

16 <https://www.slideshare.net/aurelija1957/apie-mstymo-mokyklos-rankius1?fbclid=IwAR1Chd-K53mCAlaMiWcGxkfbd0mNS-zPCjX2AjD23HW7Hm3BSH11p6r5IY>

17 <http://www.svietimonaujienos.lt/mastymo-kulturos-diegimo-patirtis-ikimokyklinio-ugdymo-istaigoje/>

18 <https://www.thinkingschoolsinternational.com/>

19 <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=2255>

and it is very encouraging that teachers become more and more involved in KA1 Erasmus+ projects. By participating, they gain the necessary experience to design their own programmes addressing students' individual needs. The School Practice Evidence was further supplemented with the report of the mobility programme, in the format of a document.²⁰

2. In the School Practice Evidence "**School community STEM Lab**"²¹ there is a great explanation about the creation and establishment of a STEM Lab within **Escola Joan Miró**, in Spain. By initiating this Lab, the school enabled the students to benefit greatly from access to equipment and educational materials but also from the mentorship offered by school alumni who were granted access. With this significant action, the school laid the basis for better integrating and supporting STEM education within the curriculum, in cooperation with local communities. The School Practice Evidence addressed the criteria "Access to technology and equipment", "High-quality instruction classroom materials", "School Leadership", "Connection with local communities" and "Professional development". It was further supported by a link to the Lab webpage, on the school's website miroSTEM.²²

3. Another important action by the same school within the context of collaboration with universities and research centres was outlined in the School Practice Evidence "**Collaboration School - University during pandemia**"²³ where the school authorities in cooperation with an undergraduate student from the University of Barcelona designed weekly STEM activities remotely explaining why STEM is important. The specific School Practice Evidence was designed and implemented during the peak period of the Covid-19 crisis after the Ambassador STEM School Escola Joan Miró in Spain consulted the STEM School Label team on how to approach universities and research centres in order to help students during this emergency. Consequently, connection and a collaboration between the school and the University of Barcelona was established, and the supporting evidence submitted is a video where the cooperating university student explains how they will be working together for this purpose of addressing the respective criterion. The details can be found on the school's website miroSTEM.²⁴

4. The French Ambassador STEM School **Collège Pfeffel** highlighted computer science and programming activities in their School Practice Evidence submission "**Dessin 3D et imprimante 3D**".²⁵ With this School Practice

20 <http://storage.eun.org/resources/stemsl/upload/2255/Mobility%20report%20from%20Job%20shadowing%20in%20Turkey%20Erasmus.docx>

21 <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=2420>

22 <https://sites.google.com/escolajoanmiron.com/mirostem/school-community-stem-lab>

23 <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=3864>

24 <https://sites.google.com/escolajoanmiron.com/mirostem/meet-marta-olaria>

25 <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=2980>

Evidence submission, the school has shared detailed guidelines on how to design 3D prototypes using special software remotely, with the cooperation of the parents, as the activity took place during the period of the Covid-19 confinement. While it is understandable that 3D printers are not widely accessible especially in households, the specific activity allowed students to proceed with parts of the theory and practical elements of 3D printing and the respective software used while attending classes remotely. The outcome of this activity was two projects entitled *Projet de situation d'urgence*: “le kit d’abri d’urgence” and *Ecolodge*. In this School Practice Evidence the criteria addressed were “Personalisation of learning”, “Problem- and Project-Based Learning (PBL)”, “Inquiry-based Science Education (IBSE)”, “Emphasis on STEM topics and competencies”, “Contextualisation of STEM teaching”, “Personalised assessment”, “High-quality instruction classroom materials”, “Connection with parents/guardians” and “Highly qualified professionals”. The supporting evidence submitted was a PDF file in French²⁶ with instructions, screenshots of how to use the software and information about these projects.

5. **Collège Pfeffel** in France shared a second dossier of School Practice Evidence, entitled “**Un EPI mathématiques - Sciences Physique**”.²⁷ With this submission, the school gave details

about a 30-hour long programming workshop that aims to familiarise students with mBlock and Arduino while using the visual programming language Scratch. The supporting document that was submitted is a very detailed guide in French,²⁸ with instructions and tips about the hardware and software used for those activities, but also practical exercises with step-by-step guidelines and screenshots. The criteria claimed were “Emphasis on STEM topics and competencies”, “Interdisciplinary instruction”, “Access to technology and equipment” and “High level of cooperation among staff”.

6. It was especially interesting to follow up on the process of approaching major industry players. As an example of best practice regarding the criterion “Collaboration with industry”, the French Ambassador STEM School **Lycée International de Valbonne** presented its collaboration with Thalès Group. As reflected in the School Practice Evidence “**Détecteur autonome de feux de forêt**”,²⁹ teachers worked with engineers from the Research and Innovation team in order to raise awareness on forest fire detection techniques and develop a detection sensor that will contribute to the preservation of the environment and biodiversity. During this activity, students had the opportunity to find data online, interpret it using processes from mathematics and construct and use the detector made in class. At the

26 <http://storage.eun.org/resources/stemsl/upload/2980/SPE-%20Techno%20Dessin%203D.pdf>

27 <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=2203>

28 <http://storage.eun.org/resources/stemsl/upload/2203/Utilisation%20de%20la%20carte%20Arduino%20en%20Physique%20version%20ESPE.pdf>

29 <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=2333>

same time, in addition to the realistic contextualisation of STEM subjects, students had the opportunity to work collaboratively on the communication aspects of the project, such as logo design and the assessment of the sociological impact sensors have, in addition to facilitating the work of firefighters. This School Practice Evidence was a clear example of Inquiry-Based Science Education and project-based activity. The specific School Practice Evidence was further supported by a presentation³⁰ in which all the steps and actions taken were outlined. The criteria addressed in this School Practice Evidence were “Inquiry-based Science Education (IBSE)”, “Contextualisation of STEM teaching”, “Access to technology and equipment”, “Collaboration with industry”, “Connection with universities and/or research centres”.

7. Another area that Ambassador STEM Schools but also schools in Europe largely focused on was gender diversity and the involvement of girls in STEM activities. Within the context of Schools Tune Into Mars, a European project about space education funded by the European Union, the Ambassador STEM School **Lycée International de Valbonne** actively involved and engaged female students. While the activities address the classroom collectively, female students often lose interest or quit halfway through. In the

School Practice Evidence “**STEM by girls**”³¹ a presentation prepared and carried out by female students was made available for the STEM School Label community. The School Practice Evidence submission was supported by a video of the presentation,³² and addressed the criteria “Inquiry-based Science Education (IBSE)”, “Emphasis on STEM topics and competencies”, “Contextualisation of STEM teaching”, “High-quality instruction classroom materials” and “Connection with universities and/or research centres”.

8. Another prime example of high-quality materials created by teachers and outcome of a school's participation in international projects, is the recently developed Massive Open Online Course for the *Schools Tune Into Mars project*, as illustrated in the School Practice Evidence “**Schools Tune Into Mars**”.³³ The participating teachers from the Ambassador STEM School **Lycée International de Valbonne** in France, in collaboration with experts, developed this course to share ideas, materials and activities that inspired hundreds of teachers to bring space education and awareness about relevant careers in this field to their students. The supporting evidence for this submission was the resources page on the website of the Schools Tune Into Mars project³⁴ providing teachers with high-quality materials and resources which can be

30 <http://storage.eun.org/resources/stemsl/upload/2333/Projet%20D%C3%A9tecte%20de%20feux%20de%20for%C3%AAt%20Thales%20CIV.pdf>

31 <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=2597>

32 <https://vimeo.com/396364686/b1e73977e1>

33 <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=2929>

34 <https://insight.oca.eu/fr/stim-resources>

used in the classroom. The criteria that this School Practice Evidence addressed were “School Leadership”, “High level of cooperation among staff”, “Connection with other schools and/or educational platforms”, “Connection with universities and/or research centres”, “Highly qualified professionals”, “Existence of supporting pedagogical staff” and “Professional development”.

9. As mentioned in the previous section, participation in international and public funded projects, but also the outcome of such energies, is also crucial and definitely a development to be encouraged. The Ambassador STEM School **Agrupamento de Escolas Cidade do Entroncamento** in Portugal participated in BLOOM, another project funded by the European Union, bringing the topic of bioeconomy and sustainability to schools. Such involvement benefits both students and teachers and is additionally an excellent opportunity for professional development for teachers, resulting in improved school leadership and the development of high-quality teaching and learning materials. The outcomes of their participation and efforts can be found online in the official website of the project,³⁵ which also supported their School Practice Evidence “**BLOOM**”.³⁶ The criteria addressed in this submission were “Personalisation of learning”, “Problem- and Project-Based Learning (PBL)”, “Emphasis on STEM topics and competencies”, “Interdisciplinary instruction”, “Contextualisation of STEM

teaching”, “Continuous assessment”, “Personalised assessment”, “School leadership”, “High level of cooperation among staff”, “Inclusive culture”, “Highly qualified professionals” and “Professional development”, reflecting the actions taken collectively by both the school’s staff and the students.

The School Practice Evidence selection above is only a brief sample of the broad spectrum of activities that participating STEM School Label schools conceptualised, designed and organised. Those activities vary in terms of type (webinars, guest speakers’ lectures, online and in-class implementation, participation in workshops, competitions and conferences, to name a few). They also vary greatly in terms of the number of students and teachers or supporting staff being involved, and of course the subject within which each teacher or school stakeholder chose to design each activity. However, they were all considered good examples that can be implemented easily by other schools.



³⁵ <https://bloom-bioeconomy.eu/>

³⁶ <https://www.stemschoollabel.eu/group/admin/school-practice-evidences/detail?schoolPracticeEvidenceId=2824>

Those School Practice Evidence submissions are proof that in addition to teachers and school stakeholders delving into niche topics such as space exploration in order to contextualise STEM disciplines and subjects like Physics or Mathematics, it can be seen that new technologies such as 3D design and use of drones are employed in order to gain students' interest. Mentorship was yet another important theme that the schools actively involved with the STEM School Label tried to address. A number of School Practice Evidence submissions on the STEM School Label platform outlined in great detail how schools organised career awareness events and fairs, activities especially dedicated to students achieving higher than average results, and also teachers working closely with universities and mentoring schemes with former alumni. Finally, regarding the

submissions received, great emphasis was placed on a systematic effort by schools' representatives to connect and form long-lasting partnerships with local communities, parents and industry, and also to strengthen internal communication and cooperation.



4) THE STEM SCHOOL LABEL, ORGANISING CONFERENCES AND NETWORKING EVENTS

Bringing school stakeholders together to meet in person is a great complement to all the online and social media activity carried out by the STEM School Label. There are opportunities for education, dissemination, networking and underscoring why developing a STEM strategy at the school level is so important to the young people of Europe. These range from the STEM School Label High-Level Event that was organised on 25-26 June 2020 to the workshop sessions that were organised on 20-21 September 2019 in order to engage schools and support their development.

Capacity-building programme organised for Ambassador STEM Schools

Objectives of the two-day training workshop

Following the launch of the STEM School Label platform, the 20 Ambassador STEM Schools were invited to the 33rd Science Projects Workshop (SPW33) at EUN's Future Classroom Lab in Brussels on 20-21 September 2019, organised by the STEM School Label and Scientix. The objectives of this workshop were the following:

1. To bring together all the representatives of the Ambassador STEM Schools in order to give them the opportunity to network, connect, and exchange ideas about good practices related to STEM School strategies. Each of the Ambassador STEM Schools was represented by the head of school and another teacher, with at least one

of the two being an active teacher of STEM subjects. Consequently, it was ensured that all the participants had real experience in both science education and also educational administration and leadership.

2. To initiate discussion on the current state of the STEM School criteria, and voice the difficulties encountered by schools while implementing a STEM strategy at the school level. The discussion that followed was constructive, shedding light on the magnitude of the efforts the teachers make during the academic year in undertaking activities and organising events that often do not overlap with the suggestions of the curriculum, while school curricula throughout Europe are already rather diverse.

3. Finally, in addition to defining what is a STEM School, networking and generating discussion about the project and the common goals the Ambassador STEM Schools share, the STEM School Label project provides the opportunity for the network of Ambassador STEM Schools to receive feedback, guidance and mentorship. During this two-day workshop, EUN provided Ambassador STEM Schools with resources and extra guidance to help them reach the next label by March 2020.

Capacity-building programme carried out during the workshop

The 33rd Science Projects Workshop in the Future Classroom Lab, organised by Scientix and the STEM School Label was organised for Scientix Ambassadors³⁷ and teachers and heads of schools from STEM School Label Ambassador schools. In total, 52 teachers and heads of schools from 14 countries participated.

The competences and challenges regarding the STEM strategy of selected Ambassador STEM Schools were taken into consideration when dividing participants into groups prior to the workshop. This way, schools received personalised training during the various sessions in the areas where they needed it most but also in the areas that they did not manage to cover in the evidence they submitted during the first year of evaluation.

The workshop programme included, in terms of training:

4. On Friday 20th September 2019: Different parallel 45-minute sessions based on the criteria that were the most difficult to address for the selected Ambassador STEM Schools: Curriculum Implementation; School Leadership and Culture; Infrastructure. A networking dinner followed the different sessions, during which participants were invited to discuss the topic “Are labels important in education?”

5. On Saturday 21st of September 2019, the programme continued with different parallel 45-minute sessions, still addressing the needs of selected Ambassador STEM Schools and related to the following STEM School criteria: Connections with universities and/or research centres; Assessment; Problem- and Project-Based Learning; Connections; Professionalisation of staff.

All the training sessions included a short presentation of the specific criterion or key element to be addressed during the session and provided participants with examples of related School Practice Evidence that could be submitted on the STEM School Label platform and corresponding resources in order to improve related activities at the school level. Each training session also gave the floor to participants to exchange best practices and spark new ideas related to the criterion in question. Dividing participants into smaller groups allowed the training sessions to be more dynamic and to have the necessary space for discussions among schools while allowing them to reflect on their own practice.

At the end of the different training sessions, each group had to reflect about their global STEM strategy during a session entitled “Common Focus Areas” listing the difficulties they face at the school level and in preparing the action plan for the next academic year to improve this strategy. Following these sessions, it was highlighted that for most Ambassador

³⁷ Scientix ambassadors are STEM teachers supporting the dissemination of Scientix, the Community for Science Education in Europe, and the exchange of good practices among science education stakeholders. A compulsory step in their selection is the Scientix Ambassadors Training course – an online course run on the Moodle platform specifically aiming to develop the participants’ communication and presentation skills, project work, social media, and other soft skills.

STEM Schools the criteria “School leadership”, “Personalised assessment” and “Interdisciplinary instruction” were among the most difficult to address.



STEM
School
Label

Figure 2: SPW33 – Images from the event

Overall, the 33rd SPW at FCL contributed to providing teachers with access and knowhow on innovative teaching methodologies, as well as providing participants with the opportunity to exchange about innovative STEM practices.

Feedback received from the workshop

After the event, the organisers sent feedback forms to all the participants so they could evaluate the event in terms of organisation, logistics, quality of content and sessions delivered. During the SPW33 a total of 55 participants attended the sessions, and 36 provided their feedback. The feedback received regarding the different sessions was highly positive.

Regarding the content of the different sessions organised, all common sessions organised on the Friday and Saturday

were considered good or very good. The vast majority of the training sessions organised during the Friday and Saturday also received very positive feedback, as they were also considered good or very good. Only the sessions related to the criteria Curriculum implementation and Assessment received less positive feedback from by some respondents although they did not leave any comments explaining their choice.

Some respondents highlighted that the event offered them a great opportunity to network and to get new inspiring ideas to improve their current practice regarding STEM education. In this regard, for the question related to “the most useful / enjoyable / inspirational / exciting aspect of the event and why?” the participants left some of the following comments:

- “The possibility of sharing experiences with other colleagues from the rest of Europe; the quality and location of the venue, which allows you to breathe the European spirit; finding that many other good teachers are working hard to improve science education and teaching methodologies.”
 - “As one of the speakers delivering the workshop, I got some ideas for further improving our content. It was indeed an enjoyable discussion with the teachers.”
 - “Have a lot of time to exchange with my principal.”
 - “Exchange with other colleagues.”
 - “Organisation of the event, some lecturers and their lectures, new methods of working, some new and inspiring ideas.”
 - “Since I am not working in school, it was very important for me to see the real picture that schools are facing in their daily work implementing STEM and STEAM education. It was helpful to discuss issues and to get more ideas on how to implement STEM in schools. I will use the new knowledge, skills, or resources in my work with teachers at national level, also running the seminars at schools.”
 - “To see that someone can help us in the process to become a better school in STEM methodology and to discover how many resources we can use to achieve it.”
 - “Communication workshop brought a lot of useful advice.”
 - “Love the networking and the chance to meet other teachers, knowing their lives in teaching and their school rules. The hospitality was perfect, the atmosphere relaxed and collaborative.”
 - “Clarifying some of the STEM School Label criteria.”
- It is clear that the capacity-building programme gave the participants some new tools to improve their STEM strategy at the school level and the chance to build new partnerships. As for the question “What did you get out of the event? (e.g. share with us the ideas or projects or collaborations the event has inspired you to follow up)”, some of the comments from the respondents were the following:
- “On the whole, the event was a very good experience and gave lots of insights from the point of view of teachers. The organisation was also very systematic.”
 - “Integration of STEAM in general education; integrated lesson plans.”
 - “With a few schools we shared our ideas and contacts and are planning to prepare an application for a new Erasmus+ KA2 project”.
 - “Definitely this meeting will boost our STEM implementation in our school. Since the meeting, we have already started creating a group of teachers involved in STEM subjects to start cooperating. An agenda of what to do and when is set in a SMART way.”
 - “We got new ideas for cooperation among teaching staff.”
 - “We shared ideas where we could do some video conferencing with some science activities with other countries.”
 - “The project of energy.”
 - “I’ll try to keep contacts with two other schools to see the evolution of their projects.”
 - “I expect to improve my classes’ level.”

- “We have written an article about the 33rd science projects workshop in which we include our experience of STEAM education and opportunities of being a part of the ‘STEAM School Label’ project community, we described our main aims to improve our teaching process and that we are ready to share and to help other schools to join the project.”
- “Collaboration with my school colleague, building our projects, and collaboration projects with other schools.”

Actions carried out by Ambassadors following the workshop

During this workshop, it was requested from the Ambassador STEM Schools that they revise their STEM strategy and submit their individual Action Plans by January 2020, outlining in detail the steps they were going to take to improve. Following this workshop, six schools have submitted their Action Plans and have further received personalised advice on how to further improve and finalise their Action Plans.

While not every school submitted its Action Plan, in their vast majority, schools consistently submitted their School Practice Evidence. Since the 33rd Science Projects Workshop, Ambassador STEM Schools have developed and transformed

their STEM strategies in various ways, and this was reflected in their School Practice Evidence. The outcome of this ongoing and rewarding process was that five Ambassador STEM Schools reached the Proficient Label.

STEM School Label competition during the STEM Discovery Campaign 2020

In collaboration with the 2020 STEM Discovery Campaign,³⁸ the STEM School Label project invited primary and secondary schools to use the STEM School Label platform as a way of developing their STEM strategy at the school level and sharing their stories of implementation with other schools. This competition was organised to provide schools with another opportunity to exchange about their innovative STEM practices and bring visibility to their activities.

The competition was open to all primary and secondary school stakeholders from European Union countries and Horizon 2020-associated countries who are acting on behalf of their school and developing their STEM School strategy. To take part in the competition, participants had to do one of the following actions:

- Create an account on the STEM School Label platform (www.stemschoollabel.com).

³⁸ The STEM Discovery Campaign is a yearly international initiative that invites projects, organisations and schools across Europe and around the world, to celebrate careers and studies in the fields of Science, Technology, Engineering and Mathematics (STEM). The STEM Discovery Campaign is supported by Scientix (<http://scientix.eu>), the Community for Science Education in Europe. Scientix promotes and supports a Europe-wide collaboration among STEM teachers, education researchers, policymakers and other STEM education professionals. Scientix has been running since 2010 organizing teacher-training activities, dissemination conferences and events, and supporting the exchange of knowledge and experiences in STEM education via its portal, publications and events. Scientix is funded by the European Union's Horizon 2020 research and innovation programme and coordinated by European Schoolnet.

eu) and submit a Case Study via the platform (on behalf of the school)

- Organise an event related to one of the STEM School Label criteria and submit School Practice Evidence via the platform (on behalf of the school)
- Show the school's new STEM School Label achieved during the competition period (on behalf of the school).

Following the high-quality submissions received, two winners (the Lycée International de Valbonne, France, and Šiaulių lopšelis-darželis "Pasaka", Lithuania) were selected to present their school activities during the online High-Level Event. They also had the opportunity to publish a testimonial about their school on the STEM School Label portal³⁹ to gain significant visibility for their school.

The STEM School Label High-Level Event

Objectives of the two-day online conference

Organised jointly with Scientix⁴⁰ and STEM Alliance,⁴¹ the STEM School Label High-Level Event offered two days, 25 and 26 June 2020, of online conferences and interactive sessions with Ministries of Education, researchers, school representatives and industry representatives. This event was open to anyone interested in STEM education and aimed to:

- Provide insight into how schools can evaluate their school strategy via a European STEM framework defined by 21 criteria
- Share some tips from key stakeholders involved in the European STEM Education agenda on how a school can improve its STEM strategy
- Share innovative practices regarding STEM education developments, and the best practices collected from the STEM School Label project since the start of the initiative.

Over 330 participants joined the online sessions and participated in the online discussions via the various Question and Answer sessions. The recording of the event⁴² was made available on the STEM School Label platform to reach an even broader audience. This conference was part of the STEM Online Days 2020⁴³ a unique initiative that gathers numerous free and easily accessible online STEM events to keep providing professional development opportunities for teachers, educators and everyone interested in STEM education.

The agenda of the event

The agenda of the event (as shown in Figure 3) included a mix of presentations from teachers, heads of schools, researchers and also representatives of STEM organisations and Ministries from different countries in Europe.

39 All testimonials can be found under: <https://www.stemschoollabel.eu/testimonials>

40 <http://www.scientix.eu/>

41 <http://www.stemalliance.eu/>

42 Webinar Presentation 25 June: <https://www.youtube.com/watch?v=ixBiVKaug6o&feature=youtu.be>

Webinar Presentation 26 June: <https://www.youtube.com/watch?v=5ucXSrkCKfA&feature=youtu.be>

43 <http://www.scientix.eu/events/campaigns/stem-online-days-2020>

They all agreed to share with the audience their experience or research findings about the different aspects and criteria defining a STEM School.

Some images from this online event can be seen in Figure 4.



Figure 3: Agenda of the STEM School Label High-Level Event: 25-26 June 2020

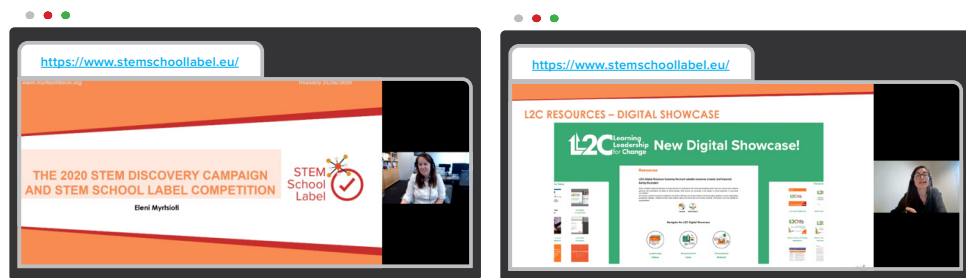


Figure 4: Pictures from the STEM School Label High-Level Event

As shown in Figure 5, the agenda of each day also included some time for open discussions and answering questions from participants.

Overall, the STEM School Label High-Level Event contributed to providing participants with access and knowhow on innovative teaching methodologies and STEM School Label best practices, as well as examples of how to use the STEM School Label platform and develop the STEM strategy at the school level



Figure 5: Picture from the STEM School Label High-Level Event Open Discussion session

Feedback received from the event

After the event, the organisers sent feedback forms to all the participants who signed the online signature list so they could evaluate the event in terms of organisation, quality of content and sessions delivered. 249 participants provided their feedback. The feedback received regarding the different sessions was highly positive.

Regarding the content of the different presentations, all presentations organised on Thursday or Friday were considered good or very good. The 249 participants stated that they would recommend this type of activities to others.

A lot of the respondents (i.e. 159) highlighted that the event offered them a great opportunity to network and to get inspiring new ideas to improve their current practice regarding STEM education. In this regard, for the question related to “the most useful / enjoyable / inspirational / exciting aspect of the event and why?” some of the comments left by the participants were the following:

“The schools’ participation”, “The examples were inspiring”, “It was applicable and useful”, “I would like to apply for STEM School Label”, “Seeing so many people interested in changing the way school/the act of teaching is formatted”, “For me, this was about the innovative methodologies and models of integration between STEM subjects”, “Each part of the event was interesting and effective. Especially the exchange of experience with colleagues, with practical examples, because I was motivated”, “As a language teacher (I teach French) I find very interesting, even fascinating, these presentations about STEM.”

Finally, to the question “What did you get out of the event?”, 121 participants responded. The great majority of them were highly positive. Some of the comments left are reported on the next page.

“The event opened me, as a teacher, and my school to a new way of facing STEM.”

“It helped me design new STEM events.”

“Meeting with other educators was an eye-opener.”

“I learned that you need to develop a plan to get the STEM School title. You also need to involve more teachers, the principal and the parents. Companies can get involved by helping students with STEM activities.”

“Theory behind new models of integration was inspiring.”

“I had opportunity to see problems of STEM and I had opportunity to see some solutions. I saw STEM from different levels: countries - ministries of education – headmasters - teachers. Thank you very much!”

“This year our school got the STEM School Label - Competent. I heard some ideas about the analysis of Action Plan for future development as well as lots of useful websites.”

“I got some ideas, how to improve our STEM strategy in our school, how to implement projects, based on STEM.”

“I decided to collaborate with other European schools on a STEM project.”

“I feel myself more confident about the process for STEM School level, integration between STEM subjects, building a STEM education framework and ready to apply for STEM School Label.”

“EVERYTHING was good, it's good to compare yourself with others and see what you can do to improve and help with better education.”

CONCLUSIONS: WHAT HAVE WE LEARNED AND WHAT IS THE WAY FORWARD?

During these 16 months of experience, 1,880 schools joined the STEM School Label, which means that the STEM School Label already reaches over 141,600 students. 545 schools received the Competent Label and seven reached the Proficient Label. These numbers show already that a lot of schools in Europe are showing a commitment to developing a STEM School strategy with some aspects in place. From primary to upper secondary, the STEM School Label reaches diverse levels of schools and audiences including teachers of STEM and other subjects, school managers, teacher trainers, students and parents throughout Europe and beyond. Since the launch of its platform, the STEM School Label has undoubtedly made a significant impact on schools, the development of their STEM strategy and consequently their students, throughout Europe, for example, by providing them with a framework organised around 21 criteria and by allowing schools to share their practices via Case Studies and School Practice Evidence. Besides, events organised by the STEM School Label are praised for their professionalism and friendly, open atmosphere. Of course, there are still some challenges for the STEM School Label to work on and European Schoolnet will keep working in the coming years to grow its community and will continue to support schools in developing their STEM strategy further.

The STEM School Label addresses one of the greatest challenges, which is to make STEM studies more attractive to students on a whole-school level. With the technological transformations that can be expected in the near future, STEM skills will increasingly be demanded for the functioning and well-being of our society. It is therefore essential that education institutions prepare students and teachers for this rapid economic and social change. Therefore the STEM School Label will not end with the current Erasmus+ project (end of August 2020) but will continue to be maintained by European Schoolnet under the Scientix umbrella so it can continue guiding schools on their way to creating a sustainable STEM ecosystem.

STEM SCHOOL LABEL ABOUT



The STEM School Label is a joint initiative of European Schoolnet, Ciencia Viva (Portugal), Maison pour la science en Alsace (France), the Center for the Promotion of Science (Serbia) and the Education Development Centre (Lithuania). With the STEM School Label, school representatives are able to evaluate their school via an online self-assessment tool, according to criteria defining a STEM School. This self-assessment tool identifies areas that require development and provides training and resources for its participating schools, with the aim of improving their activities in the fields of STEM at the school level.



Erasmus+

STEM School Label is Co-funded by the Erasmus+ Programme of the European Union (Grant Agreement N. 2017-1-BE02-KA201-034748). The content of this promotional material is the sole responsibility of the organizer and it does not represent the opinion of the European Commission (EC), and the EC is not responsible for any use that might be made of information contained.



STEM
School
Label

