STE(A)M education policy		
Section 1: Summary		
1.1	Author(s)	Stefania Raschi - Affiliation: Comprehensive school "Terranova da Sibari" located in Terranova da Sibari (Cosenza – Italy) – Role: Technology teacher in secondary school
1.2	Background	I'm an architect and a technology teacher. I strongly believe that it's important to let students understand how math, science, and technology principles are connected to everyday life and can help to solve problem-based learning through laboratory activities and also using tools such as computers, mobile and other platforms or other technologies.
1.3	Descriptive title	"A STEAM framework for students and teachers"
1.4	Abstract	To ensure that students are fascinated and intrigued by STEM careers and to understand the key role they play in our lives and the need for STEM disciplines for our future, we need these to be taught in an integrated way. Measures and methodologies are needed to teach the different disciplines in an integrated way, connected to real life issues. In this way, future citizens will be ready to face the problems that society will present, in a collaborative and critical way. First of all, it is necessary to develop a program to develop the skills of teachers in primary and secondary schools, making industry and education cooperate and contextualizing STEM teaching in real life. Learning methodologies such as problem based learning (PBL), inquiry based learning (IBL) and project-based, mixed learning, based on arts and games, can increase motivation and diligence to learn. Similarly, experimental learning methods, work-based learning and science-based learning in science, technology, engineering and mathematics (STEM) can promote the development of various skills.
Section 2: Goals		
2.1	General goal	The general problem is to enhance STEM learning to educate students to a broader understanding of the present and to master the scientific and technological tools necessary for the exercise of citizenship and to improve and increase the skills required by the economy and work, also undertaking stem careers. The solution to the problem can be provided by supplying training for teachers, promoting the creation of laboratory spaces and providing digital tools suitable for

		supporting curricular learning and teaching disciplines STEM (Science, Technology, Engineering and Mathematics).
2.2	General goal description	Support for the development of skills in STEM fields is expressed in the COUNCIL RECOMMENDATION of 22 May 2018 related to key competences for lifelong learning. In order to motivate more young people to pursue careers in science, technology, engineering and mathematics (STEM), several initiatives across Europe have aimed to weave a closer relationship between science education and the arts and other subjects, using inductive pedagogy and involving a vast spectrum of protagonists of society and industry. To address the problem of developing key competences from a lifelong learning perspective, support should be ensured at all levels of education, training and learning pathways: developing quality early childhood education and care systems, further encourage school development and teaching excellence, offer upskilling pathways to adults in need, further develop initial and continuing vocational education and training and modernize higher education. In order to support the development of key competences it is necessary to promote the acquisition of science, technology, engineering and mathematics (STEM) skills, taking into account links to the arts, creativity and innovation, and motivating young people, especially girls and young women, to pursue STEM careers. The European Union has also founded the EU Stem Coalition (https://www.stemcoalition.eu/), the main network of national STEM platforms which collects all the educational and communication platforms existing in the EU suitable for the dissemination of STEM issues.
2.3	Strategic goals	- Let teachers work in a community of study and exchange and let them share their experiences in public repositories; - select integrated STEM learning scenarios created to be proposed to students; - build a programme for primary and secondary schools teachers regarding innovative STEM teaching - attract students to scientific careers, both girls and boys; - increase the skills of teachers in teaching stem subjects; - make students users aware of digital environments and tools, but also producers, creators, designers.

		- teachers, in particular with regard to digital skills, will have to be put in the right conditions for acting as path facilitators innovative teaching based on more familiar content for their students.
Section 3 – Targets		
3.1	Beneficiaries	Teachers and students will benefit from innovation in the school.
3.2	Recipients	Teachers are the main recipients but these, with a cascade system, will involve the whole school community.
3.3	Special needs	It will be necessary to carry out research and experimentation of new assistive technologies for STEM, for students with motor and sensory disabilities. On the one hand, it will be necessary to deepen the technologies for accessing and producing digital scientific content; on the other hand, to experiment and disseminate existing assistive technologies throughout the territory.
Section 4 – Value Proposal		
4.1	Value proposal	Motivate young people, especially girls and young women, to pursue STEM careers, promoting the acquisition of science, technology, engineering and mathematics (STEM) skills and taking into account links to the arts, creativity and innovation.
4.2	Results	Teachers of our schools will be introduced to the STE(A)M educational approach and they will be able to bring students confident to steam careers.
4.3	Impact	The aim of the program is to link stem education with the general educational planning of the Institution.
Section 5 – Costs		
5.1	Cost structure	- Labor (internal staff) - External consultants - Administrative costs - Furnishing - Hardware - Software - Miscellaneous services
5.2	Funding opportunities	The project will be carried out using the funds of action # 4 "Environments for digital teaching integrated "of the National Plan for the digital school (PNSD) with the aim of creating spaces workshops, complete with digital tools for learning STEM. All schools can periodically participate in calls for the implementation of the interventions and actions envisaged in the National Digital School Plan.

Section 6 – Action Plan		
6.1	Activities	- Carry out internal training for all teachers of the institute by teacher facilitators; - reorganize the spaces of the school to accommodate the new resources purchased; - involve local authorities for the improvement of building structures with redevelopment works; - strengthen the Institute's wi-fi network; - carry out activities with the direct involvement of students,
Section 7 - Risks		
7.1	Risks/Competition	a. Risk description The main risk lies in the current low number of teachers still trained on the learning methodologies of STEM disciplines. Many teachers are still too attached to traditional teaching and assessment and fail to motivate enough and engage students in new learning experiences. Furthermore, additional time is needed to devote not only to training but to the activities themselves, not only in curricular but also extra-curricular time. b. Probability: 1 (range 1-4) c. Severity: 1 (range 1-4) d. Mitigation strategy Students and teachers should experiment with new environments and new methodologies to understand the resulting benefits and thus be able to decide to devote more time to motivating and useful activities for their future.
7.2	Risks/Opposition	a. Risk description The risk lies in investing too many resources in the design of the STEAM lab, setting up spaces that are particularly rich in equipment. Instead, it is necessary to focus attention on the skills that students must develop, adopting an inquiry approach and favoring learning by problems and by investigation. Prepare students to develop the necessary skills. b. Probability: 2 (range 1-4) c. Severity: 2 (range 1-4) d. Mitigation strategy

		Students need to be better prepared for problem-solving learning.
7.3	Risks/External Menace	a. Risk description Potential risk of lack of resources for the maintenance costs of the resources purchased with the specific funds intended for STEM. b. Probability: 2 (range 1-4) c. Severity: 2 (range 1-4) d. Mitigation strategy Seek other funds to carry out the program