SCHOOL POLICY

STEAM CURRICULUM

Table 1 - Summary		
1	Author	Silvia Mazzeo - Primary School Teacher at Montalto Uffugo School (Cosenza) - Italy
2	Background	Primary School Teacher (English, Mathematics and Technology) since 1995, Digital Animator (IT and didactic innovation school referent) since 2015, I actively collaborate with the management staff in the implementation of the National Plan of the Digital School in the school where I work and in local and national school networks.
3	Descriptive title	STEAM CURRICULUM Bring science, technology, engineering, arte and mathematics available to children and teenagers, to boys and girls, to teach them how to think critically, how to learn and ask questions, how to experiment and create, how to solve problems.
4	Abstract	The school wants concretely work on the construction of a vertical STEAM CURRICULUM, and the promotion of engaging and meaningful laboratory activities. Recipients are all school pupils: from kindergarten children to primary school children and therefore with secondary school students. Girls and boys will know how to combine technology and logic with the various disciplines; they will discover the multifaceted applications of coding and apply computational thinking between discoveries and experiments. The project, which foresees a development of one school year, requires the collaboration of the whole community that shares the educational choices by supporting their application inside and outside the school.

Table 2 - Goals		
1	General goal	Problem: ● Raise students' learning levels of STEM disciplines ● Resistance of students to approach the STEM disciplines ● Competence of teachers on STEAM methodologies Solution: ● Training workshop about innovative and engaging teaching methodologies ● Create innovative learning environments for laboratory learning-teaching

2	General goal description	The school strongly believes in the educational value of the didactic approach to STEAM and supports its dissemination with training moments also in collaboration with the nearby UNICAL (University of Calabria), to tell and show the beauty of the scientific method, its applicability in everyday life and the ongoing intellectual challenge. A new approach, which goes beyond the arid theoretical study, aimed at arousing interest, developing opportunities for students to confront and open up to wide-ranging perspectives that look to the future and the development of new and increasingly requested professional skills. In line with the Three-Year Plan of the Institute's Educational Offer (in Italy PTOF) and following an internal and external investigation (involving teachers, students, families) on the level of innovation and didactic digitization and on the learning levels of the students, it is considered necessary to develop actions, in agreement with local authorities and associations, to increase students' skills by aiming for results in line with the national average and the development of European key skills. Through the planned actions we want to promote the human, cultural, social and civil growth of the pupils in a way that respects the different learning styles, through a path capable of guiding future choices through self-knowledge and the attitudes to be valued. We also want to increasingly promote teaching based on skills, promote inclusion and integration, implement laboratory teaching and encourage the active and collaborative participation of families in the life of the School. The enhancement of laboratory methodologies and laboratory activities, also through the realization of extracurricular projects in open classes designed in such a way as to put the pupil's motivation to learn at the center (increase curiosity and passion for discovery; modulate objectives in view of their reachability; provide meaningful answers in terms of convenience in learning).

3	Strategic goals	● Promote training actions for teachers on innovative STEAM content and methodologies (25 hours) ● Promote didactic collaboration actions in school networks at local and national level (annual or multi-year duration) ● Implement projects to promote vertical continuity between school segments to accompany and not fragment the growth paths of students during their school career. ● Provide flexible forms of organization of didactic activities, favoring organizational methods for open classes and / or for level groups; ● Enhance the technological and instrumental equipment to set up motivating learning spaces and environments and implement laboratory methodologies (robots, elements of educational electronics, augmented reality tools, ...)

Table 3 - Targets		
1	Beneficiaries	The beneficiaries of the proposed action are all students of the Institute: from kindergarten to secondary school. The construction of a vertical steam curriculum favors the development of mathematical-logical and scientific skills, computational thinking (understood as a transversal approach to the observation and analysis of reality and problem solving) alongside skills in the field of active and democratic citizenship: respect for differences, support in assuming responsibility, awareness of rights and duties, entrepreneurship education.
2	Recipients	The teachers of the three school levels for: ● start the STEAM educational path in age 3-14 ● broaden the methodological framework for a more effective didactic intervention
3	Special needs	The school is open to all pupils with specific educational needs with the involvement of qualified professional resources able to support their paths and fully involve them in the planned teaching activities. The adoption of diversified methodologies also makes it possible to support everyone's learning styles.

Table 4 - Value Proposal		
1	Value proposal	Create school networks and train a large number of teachers (> 30) to implement STEAM projects aimed at students aged 3-14.
2	Results	● Train more than 30 teachers ● expand the technological equipment (2 complete STEM laboratories)

		● Implement STEAM projects for students aged 3-14 (800 students)
3	Impact	The school aims to become a territorial reference institution for teacher training by activating a system for sharing good practices.

Table 5 - Costs		
1	Cost structure	Cost forecasting: about €40.000 ● Labor (internal staff) ● Administrative costs ● Furnishing ● Hardware, Software ● Professional training organization
2	Founding opportunities	European structural funds Ministerial funds

Table 6 - Action plan		
1	Activities	● Organization of the training plan (40h / 60 days) ○ trainer recruitment ○ dissemination of training proposal and collection of adhesions ○ training scheduling ○ experimentation in the classrooms ○ collection and sharing of good practices ● Purchase of tools and furniture for setting up the laboratories (60 days) ● Establishment of work commissions (30h) to support teachers for ○ realization of STEAM projects ○ sharing of good practices

Table 7.1 - Risks/Competition		
1	Risk description	Time is a strong element of risk: teachers and students often struggle to reconcile curricular and extra-curricular activities
2	Probability	Integer value in the range 1-4: 2
3	Severity	Integer value in the range 1-4: 2
4	Mitigation strategy	Offer tools to combine STEAM activities and curricular activities with the involvement of the largest number of teachers

Table 7.2 - Risks/Opposition		
1	Risk description	The effect of a project is not always lasting: often innovative initiatives fail to have a long-lasting impact, remaining only an episodic event; succeeding in introducing methodological innovation in the school is often very tiring and complicated
2	Probability	Integer value in the range 1-4: 2
3	Severity	Integer value in the range 1-4: 2
4	Mitigation strategy	Thanks to the school's determination to become a territorial reference institution for teacher training, (see Table 4.3) the problem can be overcome by creating working groups between teachers who have already gained experience and new teachers for an always lively comparison.

Table 7.3.a - Risks/External Menace		
1	Risk description	An example of an external threat that has affected schools around the world is the Covid-19 pandemic. Any project risks failure if young people cannot experiment face to face.
2	Probability	Integer value in the range 1-4: 1
3	Severity	Integer value in the range 1-4: 4
4	Mitigation strategy	Implementation of remote collaborative activities using online digital tools Implementation of laboratory courses in the presence with strict compliance with the procedures to combat the pandemic.