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STEAME TEACHER ACADEMY

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STEAME ACADEMY
TEACHING FACILITATION LEARNING & CREATIVITY PLAN (L&C PLAN) - LEVEL 1
STUDENT TEACHERS
TITLE: ECO MULTI-USE CUBE FROM REUSED PLASTIC BOTTLES OF WATER

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1. Overview

Title	**Eco multi-use cube from reused water plastic bottles**
Driving Question or Topic	-Can we Reuse and Recycle plastic water bottles? -Can we create useful items from recyclable materials?
Ages, Grades, …	12-15 year old students / Middle School / (Gymnasium)
Duration, Timeline, Activities	60 hours / 2 months / Various Combined Activities between Disciplines
Curriculum Alignment	**In Mathematics:** Units of measure, 2D and 3D Geometry (Metric Units and Shapes), Introduction to statistics, Probabilities and Combinatorics. **In Physics:** Chapter on Pressure: Pressure is defined as the force applied per unit area. Imagine yourself pushing down on a balloon with your thumb. The force you exert is spread out over the entire surface area of your thumb in contact with the balloon, which creates pressure. The sharper your thumb (smaller the area), the greater the pressure you create on the balloon. The formula for pressure: The formula for pressure is P = F/A, where P is pressure, F is force, and A is the area. Units of pressure: The SI unit of pressure is the pascal (Pa), which is equivalent to one newton per square meter (N/m^2). However, you might also encounter other units of pressure like pounds per square inch (psi) used for tire pressure, or millimeters of mercury (mmHg) used for blood pressure.

Pressure and fluids: Pressure is especially important when discussing fluids (liquids and gases) because fluids can easily transmit pressure in all directions. This is why a small force applied to a piston in a hydraulic system can create a large force on another piston.

Applications of pressure: There are many applications of pressure in everyday life, from the way air pressure inflates a bicycle tire to the way water pressure allows hydraulic brakes to work in cars.

Here are some additional points that might be covered in a middle school physics chapter on pressure:

The relationship between pressure and depth in fluids. Pressure in a fluid increases with depth. This is why scuba divers feel more pressure the deeper they dive.
Buoyancy: Buoyancy is the upward force exerted on an object submerged in a fluid. Pressure plays a role in buoyancy.
Atmospheric pressure: The atmosphere exerts pressure on all objects on Earth. We don't usually feel this pressure because the air inside our bodies pushes outward with an equal force.

In Chemistry: Polymers: This chapter would introduce the concept of polymers, which are large molecules made by chaining together smaller repeating units called monomers. Plastics are a specific type of polymer.
Ανοίγει σε νέο παράθυρο
www.snexplores.org
Polymer molecule

Chemical Reactions: This chapter might discuss the process of polymerization, which is the chemical reaction that links monomers together to form a polymer. Different types of polymerization reactions exist for different plastics.

Properties of Materials: Plastics have a wide variety of properties depending on their chemical structure. In this chapter, students might learn about how the structure of a plastic molecule can influence its properties, such as strength, flexibility, and heat resistance.

Here are some additional topics that might be touched upon briefly in a middle school chemistry class:

Types of Plastics: There are many different types of plastics, each with its own unique chemical structure and properties. Common examples include polyethylene (PE), polypropylene (PP), and polyvinyl chloride (PVC).

Bioplastics: Bioplastics are a type of plastic made from renewable resources like corn starch. Students might learn about bioplastics as an alternative to traditional plastics derived from fossil fuels.

The Chemistry of Recycling: The recycling process relies on the chemical properties of different plastics. In some cases, chemical

processes might be used to break down or modify plastics to make them easier to recycle.

In Biology: Ecosystems: A chapter on ecosystems might discuss plastic pollution as a threat to living organisms. Plastic debris can entangle animals, block their digestive tracts, and leach harmful chemicals into the environment.

Human Impact: A chapter on human impact on the environment might explore different types of pollution, including plastic pollution. Students might learn about the sources of plastic pollution, its effects on wildlife, and potential solutions like reducing plastic use and improving recycling.

In Computer Science: Excel sheets, Statistical analysis of data, Webpage design, building and monitoring.

In Technology/Engineering: Material Properties: This chapter would introduce students to the concept of material properties, focusing on how different materials like plastic possess specific characteristics that make them suitable for various applications. Students might explore properties like strength, flexibility, durability, heat resistance, and weight. They can then compare and contrast these properties of plastic to other materials like wood, metal, or glass.

Product Design: When it comes to product design, understanding the properties of plastics is crucial. This chapter might involve students brainstorming product ideas and then selecting the most appropriate type of plastic based on the product's intended use. For instance, a designer would choose a strong and rigid plastic for a chair, while a more flexible plastic might be suitable for a phone case.

Manufacturing Processes: Plastics can be shaped and formed through various manufacturing processes. In this chapter, students might learn about common techniques like injection molding, blow molding, and thermoforming. Injection molding, for example, involves injecting molten plastic into a mold to create a desired shape.

Computer-Aided Design (CAD): Plastics are extensively used in products designed using CAD software. This chapter might introduce students to the basics of CAD and how it can be used to design and model objects made from plastic.

Sustainability: As awareness of plastic pollution grows, middle school technology classes are increasingly incorporating lessons on sustainable design practices. This chapter might explore concepts like using recycled plastics, designing products for reusability, and minimizing plastic waste during the manufacturing process.

In Arts: Creating cubes from crystal clear water bottles, making it unique, stylish and elegant. LED lights possibly inserted. Company logos, design and print.

	In Entrepreneurship: Introduction to Business and Economics (this chapter typically lays the groundwork by explaining the nature of businesses, the role of the entrepreneur, and the different forms of business ownership: sole proprietorship, partnership, corporation), Chapters on Microeconomics: Microeconomics focuses on individual decision-making by consumers, firms, and markets. Supply and Demand (this fundamental principle dictates how prices are determined based on consumer willingness to pay (demand) and producer willingness to sell (supply). Understanding this is vital for setting prices for your product or service, Market Structures (Knowing the different market structures (perfect competition, monopoly, monopolistic competition, oligopoly) helps you understand how your company will compete in the marketplace, Production and Cost Analysis (this explores how firms convert resources into outputs, considering factors like fixed costs, variable costs, and economies of scale. This knowledge helps you optimize production and pricing strategies, Chapters on Entrepreneurship (some economics textbooks might have dedicated chapters on entrepreneurship, which would directly address), Identifying a Market Opportunity (this involves recognizing a customer need that isn't being adequately met and building a business around fulfilling that need, Business Planning (this chapter would discuss creating a business plan, a roadmap outlining your company's goals, strategies, target market, financial projections, and how you'll secure funding. **In Languages and Culture:** Essay writing, Research and Survey writing, contacting and drawing conclusions.
Contributors, Partners	Recycling companies that can provide the used bottles and factories of the area that can provide/help with pressure tests. Also our school yard that "produces" more than 600 plastic water bottles daily (since the students of our school are around 600).
Abstract - Synopsis	Learning through a Project Based Activity. Students will perform research on recyclable and non-recyclable plastics and the amount of daily plastic waste in our school. In order to reuse the plastic water bottles, they will explore ways they can create eco-friendly multi use cubes that ca be use as stools/chairs, garden sofas etc. Various types of glues and cube sizes will be tested. With their final product the students will be able to create their own small scale business (start-up), entering an eco-friendly entrepreneurship world and discovering the basic principles of marketing. A complete STEAME+ Learning Approach that involves Mathematics, Physics, Chemistry, Biology, Technology, Engineering, Computer Science (STEM), Arts (A), Entrepreneurship (E), as well as Language and Culture (+).
References, Acknowledgements	The steps for performing our PBL procedure we written following a revised approach from the book "Project Method: Organising and Developing Cross-Thematic and Multi/Inter/ Intra- Disciplinary Projects" by Dr Chrysoulla Hadjichristou, Ministry of Education, Sport and Youth, Pedagogigal Institute – Curriculum Development Unit, Cyprus.

2. STEAME ACADEMY Framework*

Teachers' Cooperation	**Teacher 1 (Mathematics)** **Teacher 2 (Physics)** **Teacher 3 (Chemistry)** **Teacher 4 (Biology)** **Teacher 5 (Computer Science)** **Teacher 6 (Technology/Engineering)** **Teacher 7 (Arts)** **Teacher 8 (Economics/Marketing)** **Teacher 9 (Languages/Culture)** T3 cooperates with T4 regarding the general research on plastics, reusable and non-reusable materials, the amount of daily plastic waste, natural decomposition and chemical decomposition of materials. T1 cooperates with T2 and T6 regarding the dimensions of the multi-use cubes and the parameters of its construction. T5 cooperates with T7 and T9 regarding the artistic side of the multi-use cubes, history of plastic and plastic recycling in our city, colors and dimensions of the cube, webpage/ Facebook/ Instagram profile creation for advertising the product as well as taking orders by clients. T1 cooperates with T5 regarding the analysis of various data, pressure measuring data, as well as various questionnaires' results. Creation and manipulation of Excel sheets. T1 cooperates with T7 and T8 for facilitating the creation of a small business for the pupils' product. Name, Slogan, Logo, Structure of the Board (CEO, Marketing Director, Sales Director, Media Manager etc.) T6 cooperates with T2 to be able to construct various multi-use cubes of different sizes and examine their sustainability and durability over time.
STEAME in Life (SiL) Organization	-Meeting with Plastic Recycling Factory owners / Using their plastic waste, especially the plastic water bottles or other plastic related products. -Meeting with factories for testing the pressure of the cubes using professional equipment as well as the professionals' experience and advice. -Entrepreneurship – STEAME in Life (SiL) Days: Creation of a small business for their product. Name, Slogan, Logo, Structure of the Board (CEO, Marketing Director, Sales Director, Media Manager etc.)
Action Plan Formulation	<u>Preparation (by teachers)</u> 1. Relation to the Real World – Reflection Reuse and Recycle of plastic Creating a more eco-friendly product for recycling plastic 2. Incentive – Motivation Types of plastic that cannot be recycled Creating a start-up small business Learning how to promote a product (marketing techniques) 3. Formulation of a problem resulting from the above <u>Development (by students) – Guidance & Evaluation (in 9-11, by teachers)</u> 4. Research / Gather Information on reusable and non-reusable plastics 5. Research on Plastics, natural and chemical decomposition 6. Designing of cubes, research on already available cube designs in the market. Identifying additional materials that can be used (Cartons,

Glues, Spikes) for creating the cubes. Discovering and making contact with factories that produce plastic and also significant plastic waste.
7. Construction of various types of cubes - Experiment - Implementation of the cubes.
8. Observation of the final products - Experimentation on their durability and soundproofing properties - Initial Conclusions
9. Documentation of results – Crash tests, Sound proofing tests - Explanation based on Existing Physics Theories and / or Empirical Results
10. Gathering of results / information based on points 7, 8, 9
11. First group presentation by students

Configuration & Results (by students) – Guidance & Evaluation (by teachers)

12. Configure STEAME models to describe / represent / illustrate the results
13. Studying the results in 9 and drawing conclusions, using 12
14. Applications of the Sound-proof panel in Everyday Life - Suggestions for Developing 9 (Entrepreneurship - SIL Days)

Review (by teachers)

15. Review the problem and review it under more demanding conditions

Project Completion (by students) – Guidance & Evaluation (by teachers)

16. Repeat steps 5 through 11 with additional or new requirements as formulated in 15
17. Investigation - Case Studies - Expansion - New Theories - Testing New Conclusions
18. Presentation of Conclusions and the final product - Communication Tactics

3. Objectives and Methodologies

Learning Goals and Objectives	**In General:** The very definition of STEAME+ Education, the pupil to be able to research on a topic that involves all physical sciences, art, entrepreneurship as well as languages and culture and be able to combine knowledge and skills to deliver the final product/project, draw conclusions about the result, discuss feedback, remedies. The essence of metacognition, the process of thinking about one's own thinking and learning. **In Mathematics:** To be able to manipulate numbers, measurements as well as calculation of various surface areas and volumes. To be able to perform basic probability and combinatorics knowledge and skills as well as in Statistics. Collect and refine raw data, be able to analyze data, make assumptions, perform various tests and draw conclusions. The pupil should be able to use broad mathematical skills to face any problem that arises during the whole learning and creating procedure. **In Physics:** The pupils should understand and apply basic principles of pressure and be able to perform simple pressure measuring tests. Have a full understanding of plastics' durability and be able to perform pressure tests to the materials involved.

	In Chemistry: Satisfactory research on plastic materials, origin and composition of petroleum as well as be able to identify the various types of plastics and their components. **In Biology:** The pupils will be able to demonstrate experiments on plastic decomposition. They will have full understanding on how bacteria and other microorganisms act in nature. **In Computer Science:** The pupils will be able to contact a full survey, record the results in Excel sheet and perform basic statistical analysis, drawing conclusions and presenting them in graphs. They will also be able to design a webpage for their company or to advertise/sell their product. **In Art:** Ability to use appropriate colors and shapes for best promoting their business or logo. Create various artistic styles for the product so that all customers' needs are met, and the product is successful. **In Greek Language and Culture:** A complete research on the history of the plastics, the present and a forecast for the plastics and similar materials used in the future. Detailed analysis on eco-friendly plastics and other materials as well as reusable and sustainable solutions. **In Technology/Engineering:** To be able to construct various multi-use cubes of different sizes and examine their sustainability and durability over time. **In Entrepreneurship:** The pupil to be able to work as a team and cooperate with other classmates to identify the need for a product, create a basic business plan, create/design a smart logo for his product, think/write a unique company name and a clever/commercial slogan, create/agree on a board of directors and apply the four basic principles of marketing (product, price, place and promotion).
Learning Outcomes and expected Results	**In General:** The pupil will get to improve certain STEAME+ skills, such as Problem Solving, Metacognitive Practices, Creativity, Collaboration, Communication, Critical Thinking, Demonstration of STEAM knowledge, Development of an understanding of the variety of STEM careers related to different fields of study, Application of science process/engineering process/product development process, Digital Literacy and other STEM tools - Demonstrating in class and afterschool records for student assessment, Active engagement and focus during learning activities, Active inquiries into STEAM topics, concepts, or practices. In few words, the essence of metacognition, the process of thinking about one's own thinking and learning. **In Mathematics:** Easily manipulate numbers and functions, perform measurements as well as calculation of various surface areas and volumes. To be able to perform basic probability and combinatorics knowledge and skills as well as in Statistics. Collect and refine raw data, be able to analyze data, make assumptions, perform various tests and draw conclusions. The pupil should be able to use broad mathematical

	skills to face any problem that arises during the whole learning and creating procedure. **In Physics:** Understand and apply basic principles of pressure and perform simple pressure-measuring tests. Have a full understanding of plastics' durability and be able to perform pressure tests to the materials involved. **In Chemistry:** Satisfactory research on plastic materials, origin and composition of petroleum as well as be able to identify natural and synthetic fabrics and their components. **In Biology:** Perform experiments on plastic decomposition. Understand on how bacteria and other microorganisms act in nature. **In Computer Science:** Contact and run a full survey, record the results in Excel sheet and perform basic statistical analysis, drawing conclusions and presenting them in graphs. They will also be able to design a webpage for their company or to advertise/sell their product. **In Art:** Ability to use appropriate colors and shapes for best promoting their business or logo. Create various artistic styles for the product so that all customers' needs are met and the product is successful. **In Greek Language and Culture:** Research on the history of the plastics, the present and a forecast for the plastics and similar materials used in the future. Detailed analysis on eco-friendly plastics and other materials as well as reusable and sustainable solutions. **In Technology/Engineering:** To be able to construct various multi-use cubes of different sizes and examine their sustainability and durability over time. **In Entrepreneurship:** Pupils work as a team and cooperate with other classmates to identify the need for a product, create a basic business plan, create/design a smart logo for his product, think/write a unique company name and a clever/commercial slogan, create/agree on a board of directors and apply the four basic principles of marketing (product, price, place and promotion).
Prior Knowledge and Prerequisites	**In General:** Basic STEAME+ Education skills at a lower level, from the elementary school (primary education) **In Mathematics:** Number manipulation, basic measurements with a ruler, basic surface areas and volumes. Simple probability and combinatorics skills. Broad mathematical skills to face any problem that arises during the whole learning and creating procedure. **In Physics:** Skills from simple sound-measuring tests. **In Chemistry:** Basic knowledge about the origin and composition of petroleum as well as be able to identify natural platic and their components.

	In Biology: Waste decomposition. Reusing and recycling materials. **In Computer Science:** Basic knowledge on Word and Excel programs. **In Art:** Create various artistic expressions using watercolors, pastels, as well as programs on the PC. **In Greek Language and Culture:** Essay writing, Creating simple polls on paper or online (Google Forms, Microsoft Forms etc.). **In Technology/Engineering:** Basic construction skills, cutting and gluing various materials. **In Entrepreneurship:** Teamwork skills, decision making at a lower (primary education) level.
Motivation, Methodology, Strategies, Scaffolds	- Project Based Learning/Activity that involves all Sciences, Mathematics, Art, Entrepreneurship and Languages (Greek) and Culture. Gamification on the same topic may follow as a very interesting extension. -Instruction differentiation for students' needs (learning styles, multi-modal representations, roles to students etc.) -Active students' engagement, individual-team-classroom work, entre-preneurship skills, fabric craftsman techniques, style.

4. Preparation and Means

Preparation, Space Setting, *Troubleshooting Tips*	Material preparation: - Collection of used plastic bottles (waste) from school bins or recycle factories of our area (Outdoor activity), squash them, clean and remove any stickers. - Various glues and other bonding material, water, buckets for mixing the glues with water or petrol etc. - Cartons of wood panels for creating the base or mold. -LED lights for special light effects on the final cube (if needed by the customer) Computer lab for manipulating data in Excel sheets.
Resources, Tools, Material, Attachments, Equipment	Internet, Laptops, Projector, Padlet platform for organizing the project and communicating ideas/ brainstorming.
Health and Safety	Some glues that are not water based can be harmful. Special health and safety measures should be used by both teachers and pupils, like rubber gloves.

5. Implementation

Instructional Activities, Procedures, Reflections	General research on plastics, reusable, non-reusable and possibly decomposable plastics, the amount of plastic waste, natural decomposition and chemical decomposition of materials. Measuring the dimensions of the multi-use cube and the parameters of its construction. Exploiting the artistic side of the cube, history of plastic and plastic recycling in our city, colors and dimensions of the cube, webpage/ Facebook/ Instagram profile creation for advertising the product as well as taking orders by clients. Analysis of various data, sound measuring data, as well as various questionnaires' results. Creation and manipulation of Excel sheets. Testing various glues and how the apply on various fabrics, concluding on the final/optimal selection and preparing the mix of glue and fabric to be applied on the carton base.
Assessment - Evaluation	Project-based learning (PBL) thrives on a strong foundation of assessment and formative evaluation. An approach/system to effectively measure student abilities in PBL is provided further below. PBL goes beyond rote memorization. We assess a combination of skills and knowledge acquisition: •Content Knowledge: Ensure students grasp the core concepts explored in the project. •21st Century Skills: Assess critical thinking, problem-solving, collaboration, communication, and creativity throughout the project. •Project Management Skills: Evaluate how students plan, organize, manage time, and adapt during the project. •Learning Process: Reflect on how students approach challenges, learn from mistakes, and demonstrate self-directed learning. Formative Evaluation Strategies for PBL: •Checklists & Progress Reports: Provide ongoing feedback with checklists outlining key milestones and rubrics for specific tasks. Students complete progress reports reflecting on their contributions and challenges. •Peer Reviews & Group Discussions: Facilitate peer reviews where students analyze each other's work based on rubrics. Organize group discussions to share ideas, troubleshoot, and refine approaches. •Exit Tickets & Minute Papers: Use short exit tickets or minute papers at the end of each session to gather student understanding of concepts covered and identify areas needing clarification. Rubrics are crucial for PBL as they translate project goals into clear expectations. Here's a breakdown for a science project on water quality:

Criteria	Exceeds Expectations	Meets Expectations	Needs Improvement
Content Knowledge	Demonstrates a deep understanding of pressure and plastic recycling/reuse	Shows a solid grasp of principles of pressure and plastic recycling/reus	Understanding of pressure principles and plastic recycling/reuse concepts is

	concepts, citing relevant data and scientific principles.	e concepts, applying them correctly in the project.	limited, with some inaccuracies in application.
Collaboration & Communication	Works effectively within the team, actively participating in discussions, delegating tasks, and resolving conflicts constructively. Communicates ideas clearly and concisely, both verbally and in writing.	Contributes to the team, listens to others, and helps manage tasks. Communicates ideas with some clarity, but may require prompting.	Struggles to collaborate effectively, hindering the team's progress. Communication is unclear or infrequent.
Problem-Solving & Critical Thinking	Identifies and analyzes problems effectively, proposing creative solutions and adapting strategies when needed. Demonstrates critical thinking by questioning assumptions, evaluating evidence, and drawing sound conclusions.	Identifies and solves problems with some guidance. Uses critical thinking to a moderate extent.	Has difficulty identifying or solving problems. Limited use of critical thinking skills.
Project Management	Meets all deadlines, manages time effectively, and stays organized throughout the project. Adapts to unforeseen challenges and adjusts the plan accordingly.	Completes most tasks on time, demonstrates decent organization. May need some reminders to stay on track.	Frequently misses deadlines due to poor time management and organization. Struggles to adapt to challenges.

	Learning Process & Reflection	Demonstrates strong self-directed learning skills, actively seeking and utilizing resources. Reflects deeply on the learning experience, identifying strengths, weaknesses, and areas for personal growth.	Shows initiative in learning, utilizing available resources. Reflects on the experience, acknowledging learning gained.	Limited self-directed learning. Reflection on the experience is shallow or absent.

Presentation - Reporting - Sharing	Essays from pupils on their whole experience, Microsoft PowerPoint Slides showing all their journey (construction and entrepreneurship section), Padlet platform (see link below) containing all the initial brainstorming and further discussions, ideas and actions, documents, outputs, artifacts, products produced by the students with references, web links etc.), for sharing to media. Photo albums of the procedure and final product. https://padlet.com/yiannislazarou/b4-a-25ecof777tzpon5r
Extensions - Other Information	Participate in various national and international competitions on Junior Achievement, or Recycling and Sustainability.

Resources for the development of the STEAME ACADEMY Learning and Creativity Plan Template
In the case of learning through project-based activity

STEAME ACADEMY Prototype/Guide for Learning & Creativity Approach
Action Plan Formulation

Major steps in the STEAME learning approach:

STAGE I: Preparation by one or more teachers

1. Formulating initial thoughts on the thematic sectors/areas to be covered
2. Engaging the world of the wider environment / work / business / parents / society / environment/ ethics
3. Target Age Group of Students - Associating with the Official Curriculum - Setting Goals and Objectives
4. Organization of the tasks of the parties involved - Designation of Coordinator - Workplaces etc.

STAGE II: Action Plan Formulation (Steps 1-18)

Preparation (by teachers)

19. Relation to the Real World – Reflection
20. Incentive – Motivation
21. Formulation of a problem (possibly in stages or phases) resulting from the above

Development (by students) – Guidance & Evaluation (in 9-11, by teachers)

22. Background Creation - Search / Gather Information
23. Simplify the issue - Configure the problem with a limited number of requirements
24. Case Making - Designing - identifying materials for building / development / creation
25. Construction - Workflow - Implementation of projects
26. Observation-Experimentation - Initial Conclusions
27. Documentation - Searching Thematic Areas (AI fields) related to the subject under study – Explanation based on Existing Theories and / or Empirical Results
28. Gathering of results / information based on points 7, 8, 9
29. First group presentation by students

Configuration & Results (by students) – Guidance & Evaluation (by teachers)

30. Configure STEAME models to describe / represent / illustrate the results
31. Studying the results in 9 and drawing conclusions, using 12
32. Applications in Everyday Life - Suggestions for Developing 9 (Entrepreneurship - SIL Days)

Review (by teachers)

33. Review the problem and review it under more demanding conditions

Project Completion (by students) – Guidance & Evaluation (by teachers)

34. Repeat steps 5 through 11 with additional or new requirements as formulated in 15

35. Investigation - Case Studies - Expansion - New Theories - Testing New Conclusions
36. Presentation of Conclusions - Communication Tactics.

STAGE III: STEAME ACADEMY Actions and Cooperation in Creative Projects for school students

Title of Project: _____
Brief Description/Outline of Organizational Arrangements / Responsibilities for Action

STAGE	**Activities/Steps** Teacher 1(T1) Cooperation with T2 and student guidance	**Activities /Steps** **By Students** Age Group: ___	**Activities /Steps** Teacher 2 (T2) Cooperation with T1 and student guidance
A	Preparation of steps 1,2,3		Cooperation in step 3
B	Guidance in step 9	4,5,6,7,8,9,10	Support guidance in step 9
C	Creative Evaluation	11	Creative Evaluation
D	Guidance	12	Guidance
E	Guidance	13 (9+12)	Guidance
F	Organization (SIL) STEAME in Life	14 Meeting with Business representatives	Organization (SIL) STEAME in Life
G	Preparation of step 15		Cooperation in step 15
H	Guidance	16 (repetition 5-11)	Support Guidance
I	Guidance	17	Support Guidance
K	Creative Evaluation	18	Creative Evaluation