

Proactivity

boosting soft skills



What is it?

Proactivity is the ability to anticipate situations and take the initiative to act before problems or opportunities arise. It's an attitude that goes beyond reaction; it involves planning, predicting and implementing effective actions to achieve objectives, solve challenges and create new opportunities.

Why is it important?



This skill is of the utmost importance in organizations, as it helps to prevent reactions and to encourage creative and out-of-the-box thinking, which sometimes makes the “wagon move”. It helps jobseekers develop a sense of personal responsibility, a focus on solutions and actions they can control and influence.



What are the benefits for the labour market?

- 🏆 Taking the initiative
- 🏆 Making things happen
- 🏆 Generating priorities
- 🏆 Relying on people you can learn from
- 🏆 Taking responsibility for results
- 🏆 Focus on prevention rather than reaction
- 🏆 Get the “wagon moving”
- 🏆 Produce more

Conflict Management

boosting soft skills



What is it?

Conflict management is the process of identifying, understanding and dealing with disagreements between individuals or groups, with the aim of minimising negative impacts and maximising positive results. Effective management involves techniques and strategies to turn these conflicts into opportunities for improvement and growth.

Why is it important?



Conflict management is essential for maintaining a productive and healthy working environment. Poorly managed conflicts can lead to stress, low morale and loss of productivity. On the other hand, when managed effectively, conflicts can promote innovation, improve communication and strengthen interpersonal relationships, contributing to a positive organisational climate.



What are the benefits for the labour market?

- 🏆 Improved Communication
- 🏆 Stress reduction
- 🏆 Increased Productivity
- 🏆 Promotion of innovation
- 🏆 Leadership Development
- 🏆 Building a Positive Work Environment
- 🏆 Strengthening the Organisational Culture
- 🏆 Improved Talent Retention



Problem-solving

boosting soft skills



What is it?

Problem-solving is a key **soft skill** that involves the ability to identify, analyze, and resolve problems efficiently and effectively.

Steps to effective problem-solving: identifying and analyzing the problem, brainstorming possible solutions, evaluating solutions, implementing solutions, monitoring and adjusting the solution.

Why is it important?



Problem-solving is not just about fixing issues but about improving processes and outcomes through logical, creative, and practical thinking. It's essential in both personal and professional settings and plays a vital role in decision-making and achieving desired outcomes.

Problem-solving fosters innovation, improves efficiency and strengthens leadership potential.



What are the benefits for the labour market?

- Improved Productivity and Efficiency
- Innovation and Creativity
- Increased Employability
- Better Decision-Making
- Enhanced Collaboration and Teamwork
- Higher Job Satisfaction
- Better Customer Relations



Decision making

boosting soft skills



What is it?

Decision-making is the process by which an individual or group of individuals must choose among several options. **Decision-making** is a key **soft skill** that involves the ability to make choices or come to conclusions after considering the available information, options, and potential outcomes.

Why is it important?



Good decision-making is essential for success, leadership, and long-term growth, it drives action, enhances efficiency, manages risks, builds accountability, and supports adaptability. It's essential for effective leadership, problem-solving, and navigating both personal and professional challenges.



What are the benefits for the labour market?

- Improved Productivity and Efficiency
- Enhanced Competitiveness
- Increased Innovation
- Better Risk Management
- Higher Job Satisfaction and Employee Retention
- Boosting Leadership and Career Development
- Enhanced Customer Satisfaction
- Building a Positive Organizational Culture



Time Management

boosting soft skills



What is it?

Time management is the process of planning and organizing how much time you spend on specific activities. Effective time management enables you to work smarter rather than harder, allowing you to get more done in less time, even when time is tight and pressures are high.

Why is it important?



Time management is important because it enables individuals to prioritize tasks effectively, leading to increased productivity and reduced stress. By organizing time efficiently, people can accomplish more in less time, maintain a better work-life balance, and improve the quality of their work. Additionally, good time management fosters better decision-making and enhances overall job satisfaction, contributing to personal and professional success.



What are the benefits for the labour market?

- Increased Productivity
- Improved Job Performance
- Reduced Stress and greater Employee Satisfaction
- Improved Work-Life Balance
- Enhanced Decision-Making
- Enhanced Team Collaboration
- Cost Savings

Flexibility

boosting soft skills



What is it?

Flexibility refers to the ability to adapt to new, different, or changing requirements. It is vital for personal growth, adaptability, and resilience in the face of change. It enables individuals and organizations to thrive in dynamic environments, fostering innovation and effective problem-solving.








Why is it important?



Being flexible in the labor market is important because it enables individuals and organizations to adapt to changing circumstances, such as evolving job demands, technological advancements, and market fluctuations. In a competitive environment, flexible employees and organizations can respond quickly to new opportunities and challenges, ensuring long-term success and resilience.



What are the benefits for the labour market?

-  Enhanced Productivity
-  Improved Work-Life Balance
-  Increased Retention Rates
-  Continuous Learning
-  Better Team Collaboration
-  Market Responsiveness
-  Diverse Talent Attraction



STEAM BO.SS

boosting soft skills

2023-1-IT01-KA220-VET-000163992

STEAM Challenges



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Creation of an Interactive Art Installation for a Contemporary Art Museum

Activity Description:

A contemporary art museum has tasked students with designing and creating an interactive installation that combines art and technology to offer the public an immersive experience. The students will explore interactive technologies to engage visitors actively, design visual and structural elements of the installation, and integrate scientific principles to optimize the use of technological and energy resources. The final work will consist of a single installation composed of multiple interconnected elements, each responding differently to audience interactions in a dynamic and engaging manner.

Project Constraints:

To meet the requirements set by the commissioning body, the project must adhere to the following constraints:

- **Students:**
20 students were selected from various institutions (high schools and technical institutes) between their junior and senior years.
- **Activity Duration:**
Two hours, two afternoons per week, throughout the entire academic year.
- **Budget:**
The project is co-funded by a regional entity and has a maximum budget of €5,000 for materials. This budget is exclusively for consumables, tools, and software and does not cover teacher fees.
- **Location:**
The project will take place within the workshop of **Museum X**, located in the city center.

Creation of a Virtual Exhibition for Biodiversity Conservation

Activity Description:

An environmental organization has tasked students with designing a virtual exhibition aimed at raising public awareness about biodiversity and the threats posed by its loss. Students will explore topics related to biodiversity and the environment, developing an interactive virtual experience that makes these subjects engaging and accessible to a wide audience. The final goal is to create an exhibition that helps the public better understand the challenges of biodiversity conservation and stimulates reflection on possible solutions.

Project Constraints:

The project must comply with the following constraints set by the commissioning organization:

- **Students:**
25 students selected from high schools (scientific and technical institutes) in their junior and senior years.
- **Activity Duration:**
Three hours, one afternoon per week, over a period of five months.
- **Budget:**
The project is funded by a non-profit environmental organization, with a maximum budget of €7,000 to be used for software, technological equipment, and digital materials.
- **Location:**
The activity will take place in the computer labs at **Center X**, located near the regional nature reserve.

Design of a Miniature Wind Farm for New Employee Integration

Activity Description:

A small company specializing in wind energy, with 50 employees, has recently hired 10 graduates from diverse disciplinary backgrounds (engineering, economics, humanities). To facilitate their integration into the team, the company has designed a STEAM activity that will allow the new hires to apply cross-disciplinary skills. During their first month at the company, the new employees will dedicate half of their workday to this project.

The participants will be tasked with designing a miniature wind farm that will serve as a display model to be showcased within the company. The model should highlight the company's sustainability, innovation, and technological leadership to observers. Special attention should be paid to the attractiveness of the final product, as it will also be used in trade shows and similar events.

Project Constraints:

- **Participants:**
10 newly hired graduates were selected as part of the company's recent large recruitment.
- **Activity Duration:**
The activity will last one month, with a half-day commitment (3 hours in the morning or afternoon), during which the participants will focus on the STEAM project.
- **Objectives:**
The aim is to enable the new employees to learn, collaborate, and apply multidisciplinary skills. The activity is designed to not only strengthen their technical abilities but also to enhance their teamwork and project management skills in complex scenarios.
- **Resources:**
The company will provide access to simulation software, design tools, and materials for building the model. A budget of €10,000 will be allocated for the purchase of technical and non-technical materials needed for the project.

Design of a Self-Sufficient Greenhouse for Public Garden Redevelopment

Activity Description:

An agricultural company, in collaboration with a municipal administration, invites students to design a self-sufficient greenhouse to be placed in a public garden as part of an urban redevelopment project. This STEAM activity will allow students to address the theme of environmental sustainability in a real-world context, promoting public education on urban agriculture and energy efficiency.

In the design phase, students must consider both technical and social aspects. It will be important to propose a solution that serves as both an educational tool and a means of raising awareness about the importance of sustainability.

At the end of the project, students will create a miniature prototype of the greenhouse and present a redevelopment plan that includes both technical and creative elements, enhancing their understanding of the real challenges related to urban agriculture and sustainability.

Project Constraints:

- **Participants:**
30 students from various institutions that are involved in the relevant topics, specifically agricultural vocational schools, language high schools, and technical institutes focused on information technology.
- **Activity Duration:**
One afternoon per week (3 hours) throughout the entire school year.
- **Budget:**
The involved agricultural company will provide the necessary materials for the project, provided that they are requested in advance before the start of the activity.
- **Location:**
The project will take place in the communal spaces of the exhibition center within the public garden in question.

Hackathon: Innovative Solutions for Recycling

Activity Description:

A waste management company recently conducted a recycling awareness campaign that unfortunately did not achieve the desired results. To address this failure and find new ideas to motivate citizens to recycle more efficiently, the company has decided to involve the creative minds of high school students.

Thus, an innovative challenge was born, and it was open to all secondary schools in the region. Students, divided into multidisciplinary teams, will be tasked with developing innovative solutions to improve recycling rates and raise awareness in the community. The goal is not only to enhance waste sorting but also to educate the public on how to reduce the environmental impact of waste.

The initiative will take place in two phases:

- **Phase 1:** In each city, groups of students will work together with selected teachers to develop proposals.
- **Phase 2:** The resulting proposals will be used in a three-day regional hackathon, where participants will compete to find innovative solutions based on the ideas generated. The best solutions will be awarded and could be implemented by the company.

Project Constraints:

- **Participants:**
Multidisciplinary teams composed of students from secondary schools.
- **Activity Duration:**
 - **Phase 1:** One month, two afternoons a week (3 hours each).
 - **Phase 2:** Three-day residential hackathon, 8 hours per day.
- **Budget:**
The company will provide resources, workspaces, and technical support for the activity. A budget of €15,000 will be allocated for each host city during the first phase. For the organization of the hackathon, a total budget of €100,000 will cover space rentals and the costs associated with the residential setup of the initiative.
- **Location:**
Workspaces provided by the company in each city for Phase 1. The final hackathon will take place in a mountain location chosen by the company.

Development of an Energy Consumption Monitoring App

Activity Description:

A technology company has tasked students from a technical high school specializing in IT to develop a mobile app that allows users to monitor and reduce their household energy consumption. This interdisciplinary project aims to push students beyond basic programming, offering them the opportunity to integrate knowledge from various fields.

The students will be responsible for programming the app and designing a user-friendly, intuitive, and visually appealing interface. They will also be in charge of integrating sensors to monitor energy consumption and analyzing the collected data to identify areas for improvement. Additionally, they will explore the relationship between household energy consumption and its environmental impacts, thereby increasing their awareness of ecological issues.

Through this STEAM activity, students will acquire cross-disciplinary skills and develop a more holistic and integrated approach to solving real-world problems.

Project Constraints:

- **Participants:**
Students from a technical high school specializing in IT were selected for their multidisciplinary skills relevant to the project.
- **Activity Duration:**
3 months, with a commitment of 3 hours per week.
- **Budget:**
The company will provide a maximum budget of €20,000 for the purchase of sensors, software, and other technical resources.
- **Location:**
The project will be developed in the school's computer labs, with the option for remote collaboration through digital platforms provided by the company.



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Challenge Template



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1. Project-Based Learning (PBL) Foundations

- **Driving Question:** Start with a core question that drives the project, making it relatable to real-world applications and challenges.
- **Assessment and Audience:** Define how student outcomes will be measured and identify an authentic audience for presenting results (e.g., peers, local experts)

2. Engineering Design Process (EDP) in STEAM

1. **Define the Problem:** Ask “What is the problem?”
2. **Explore and Identify:** Identify the challenge, including constraints like materials, budget, or time.
3. **Imagine and Brainstorm:** Generate multiple solutions without judgment to promote innovative ideas.
4. **Create and Prototype:** Develop prototypes, gather materials, and plan steps.
5. **Test and Evaluate:** Assess the prototype, noting areas of success and needed improvements.
6. **Iterate:** Refine the design based on feedback and repeat testing as necessary.
7. **Communicate Results:** Present findings, explaining how the solution addresses the original problem

3. Discourse, Reflection, and Questioning

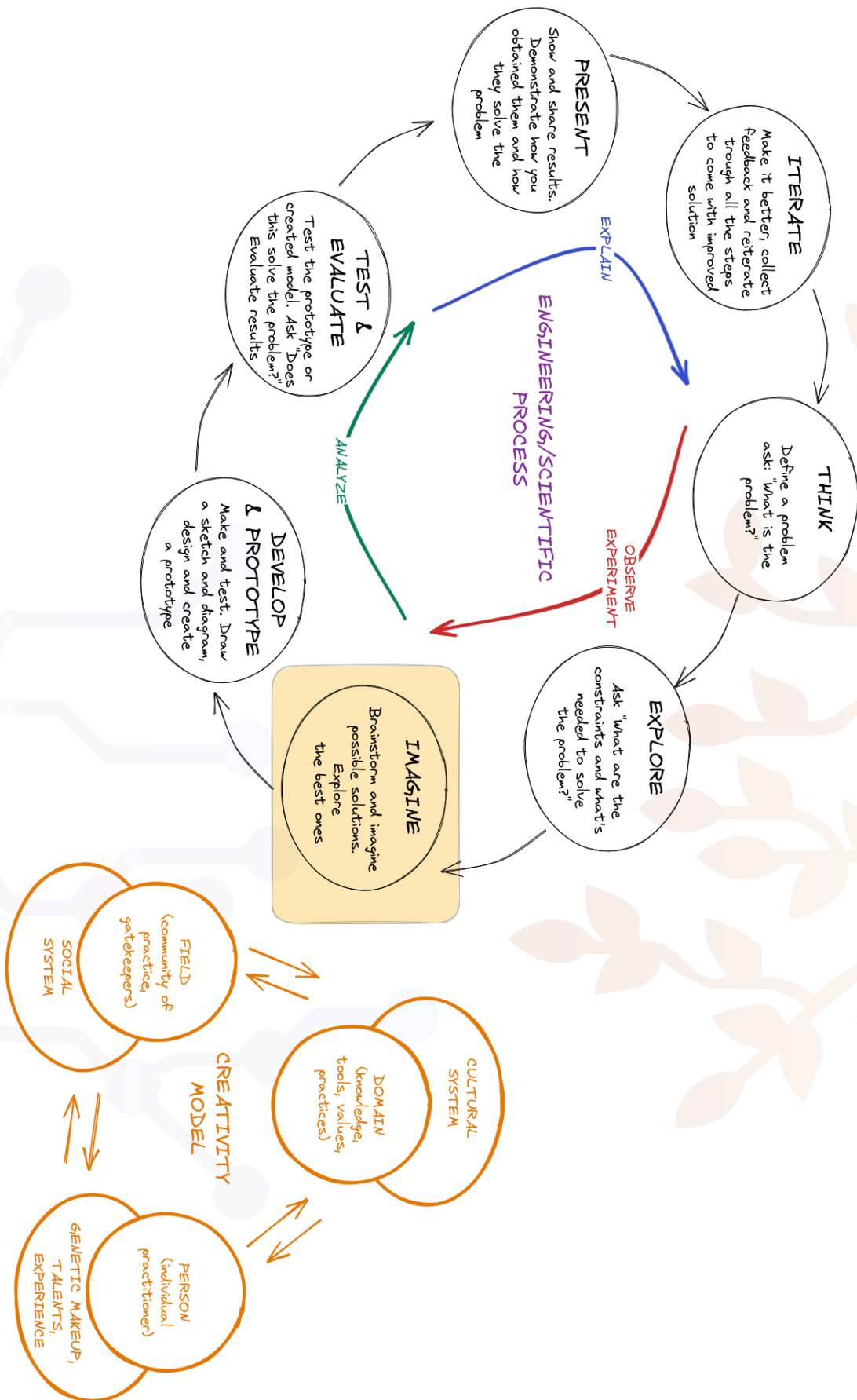
- **Facilitating Scientific Discourse:** Engage students in discussions that require evidence-based reasoning and critical analysis. Encourage collaborative conversations focused on understanding rather than winning arguments.
- **Purposeful Questioning:** Use open-ended questions to promote deeper thinking. Examples include, “What would happen if...?”, “How could you improve...?”, and “What is the connection between...?” These questions stimulate exploration and self-discovery
- **Reflection Tools:** Implement structured reflection activities, such as daily project logs, group sharing, and individual journaling. Students can reflect on successes, challenges, and improvements

4. Daily Activity Templates

- **Progress and Planning Logs:** Use daily logs to track achievements, outline next steps, and reflect on group dynamics. Include sections for students to agree or disagree with ideas, note new insights, and set specific objectives for the following day.
- **Self-Assessment:** Students can rate their work quality and contribution to the group, fostering personal responsibility and team improvement

5. 21st Century Skills Integration

- STEAM activities should build critical skills like collaboration, problem-solving, creativity, and emotional intelligence. Evaluate which skills each project emphasizes and incorporate tasks that enhance these skills (e.g., teamwork, conflict resolution, creative brainstorming)



Question for evaluation	✓	✗
<p>Does the project engage students in hands-on, active learning?</p> <p>Are there clear, specific learning objectives?</p> <p>Does the project connect to real-world challenges?</p> <p>Is there a compelling, open-ended driving question that guides the project and encourages inquiry?</p> <p>Does the project integrate multiple disciplines to foster interdisciplinary learning?</p> <p>Is the project student-centered, allowing students to explore and take ownership of their learning with the teacher as a facilitator?</p> <p>Are project activities designed to be inclusive and accessible to all learners, including those with special needs?</p> <p>Does the project incorporate design and problem-solving processes that encourage students to think critically and iteratively?</p> <p>Do students work in cooperative, collaborative groups to solve problems and achieve project goals?</p> <p>Are there structured opportunities for students to give and receive feedback, reflect on their progress, and improve their ideas?</p> <p>Do students create meaningful, real-world products or prototypes as part of their learning process?</p> <p>Do students have the chance to present their work to an audience beyond the classroom, receiving real-world feedback?</p> <p>Does the project provide students with opportunities for hands-on creation, even if a formal maker space is unavailable?</p> <p>Does the project promote the development of 21st-century skills, such as critical thinking, creativity, collaboration, and emotional intelligence, conflict management, flexibility, problem-solving, time management?</p> <p>Is there flexibility within the project to adapt to students' needs and interests while still aligning with learning goals?</p> <p>Are students encouraged to use digital tools and technology to support research, collaboration, and product creation?</p> <p>Are students encouraged to document their learning journey, including their challenges, successes, and improvements?</p>		

Use the checklist to evaluate pre- and post-program creation to verify whether or not the proposed program adheres to the goals of a STEAM program.

General information:

<p>Title <i>(specify Title of the initiative)</i></p>	
<p>Brief Description <i>(describe the activity some important points: - foresee techniques like PBL and flipped classroom (see MOOC platform) - use real-world problems as a starting point (-- Here may be a list of points that must be present in an outreach activity description --)</i></p>	
<p>Driving Question</p>	
<p>Keywords</p>	
<p>Topic <i>(main topic that will be discussed during the outreach)</i></p>	
<p>Age Range <i>(refer to K-12 classification - link -)</i></p>	
<p>Number of participants</p>	

<p>Participant characteristics <i>(previous knowledge/level of skills, interests, demography - i.e., male/female ratio -)</i></p>		
<p>Didactical Hours <i>(define the global duration of the camp and subdivision in each day)</i></p>		
<p>Training Program Outline <i>(detailed outline of the entire training program, including timeline name of the specific activity, then detail it in the specific card)</i></p>	<p>Introduction</p>	
	<p>Activity 1</p>	
	<p>Activity n</p>	
	<p>Conclusion</p>	
	<p>Total time</p>	
<p align="center">Detailed Schedule <i>(write, structure, or draw a detailed activity plan for the whole duration of the program)</i></p>		
Empty space for detailed schedule		

<p>Learning objectives (-- here better to give a definition and some examples to help --)</p> <p><i>Suggestions:</i></p> <ul style="list-style-type: none"> - foresee constant assessment of them, collect appropriate feedback, and change activity accordingly on the go - assessments can be formative, summative, individual, or group (for outreach activity, summative group assessment is preferred) 				
<p>Material budget (try to foresee eventual costs for teachers, venue, and accessory elements like food or gadgets. Also, refer to the field below to detail the total materials cost.)</p>				
<p>List of materials (with hypothetical cost per student and alternatives)</p>				
Components name	Quantity	Link to purchase	Alternative links	Cost
	Number of components needed for the expected participants			

<p>Venue needs (in terms of classroom size, tools, and so on)</p>	
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General suggestions section:

- **Think holistically:** Ensure your projects and activities are well-rounded, incorporating various aspects of STEAM and addressing multiple skills simultaneously.
- **Be creative:** Use innovative and engaging methods to capture the interest of young adults and make learning enjoyable.
- **Encourage Reflection:** Build in opportunities for participants to reflect on their learning and development, helping them internalize the skills they acquire

For each activity:

Setting the scene

(Brief description of the context and the activity. Understand the problem)

Activity Challenge

(Description of the objective of the activity. What problem do I need to solve?)

Desired results

Goals	
What students will understand/know/be able to do at the end of the activity	

<p>Teaching methods (i.e., inverse classroom, PBL approach . . .)</p>	
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Assessment

<p>Specific assessment task</p>	
<p>Other evidence of assessment</p>	

Extensions and content connections (are any other implementations possible? with different levels of difficulties and/or different target backgrounds)

<p>Level 1</p>	
<p>Level 2</p>	
<p>Level 3</p>	

Expected difficulties

Resources (all resources needed for the project, materials, software, etc.)

Preparation

Preparation of things to do and materials to be used and how	What supplies will I use?	What is my plan?

STEM connections... the science behind the activity

S	
T	
E	
M	

STEAM approach: detail specific design choices to implement the STEAM approach

Soft-Skill integration

Teamwork & Collaboration	
Conflict Management	
Flexibility	
Problem-Solving	
Time Management	

Related questions...

Observations

What worked for me?	What did not work for me?

Modifications: possible extensions of the activity

New ideas I had while working



Daily Project Planner and Log

To facilitate hands-on learning within the STEAM approach, a dedicated section for a daily project log, planning, and reflection is proposed. This addition aims to encourage structured, reflective practice, enhancing engagement with each step of the learning process.

<p>Driving question(s) of today's activity <i>(specify which question or questions have been asked today)</i> <i>Be creative; if there have been multiple questions, highlight the characteristics held by each one (difficult or not / shared or disputed / kept or discarded / question from previous iteration or new question)</i></p>	
<p>New ideas <i>(which ideas came up today?)</i></p>	

<p>Self-reflection: <i>(peer feedback, what went well and what went wrong, something unexpected from today)</i></p>	
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	PROGRESS	PLANS	NEXT ITERATION
Problem definition			
List of possible solutions			
Development and Prototypes			
Test and Evaluation			
Presentation			