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## STEAME ACADEMY TEACHING FACILITATION LEARNING & CREATIVITY PLAN (L&C PLAN) - LEVEL 2 SERVICE TEACHERS: CREATING BOXES FOR ANIMAL SHELTERS

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### 1. Overview

Title	<b>Creating Boxes for Animal Shelters</b>		
Driving Question or Topic	<p>How can we be an active part of our community?</p> <p>How can we design and construct durable, comfortable, and safe boxes for animals in shelters?</p> <p>What materials and designs are best suited for different types of animals?</p>		
Ages, Grades, ...	<b>Ages 10-15</b>	<b>Grades 5-9</b>	
Duration, Timeline, Activities	Number of learning hours: 5-6 h.	Timeline/frame, calendar: 10 x 40 min	Number of activities: 6
Curriculum Alignment	Science, Engineering, Arts, Community Service (Volunteering), Innovative subjects: <i>Human &amp; the Living Environment</i>		
Contributors, Partners	Students will design and build boxes for animals in shelters, integrating principles of design, engineering, and animal welfare. They will research animal needs, brainstorm and prototype designs, construct full-scale boxes, test and evaluate their designs, and present their projects. This project aims to enhance practical skills in design and construction while contributing to community welfare.		
Abstract - Synopsis			
References, Acknowledgements			

### 2. STEAME ACADEMY Framework\*

Teachers' Cooperation	<p><b>Teacher 1 – T1 (Science):</b> Introduce animal behavior and shelter needs.</p> <p><b>Teacher 2 – T2 (Engineering):</b> Teach design and construction principles, safety protocols.</p> <p><b>Teacher 3 – T3 (Arts):</b></p>
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<p>STEAME in Life (SiL) Organization</p> <p>Action Plan Formulation</p>	<p>Guide on aesthetic design and presentation.</p> <ul style="list-style-type: none"> <li>● Involve community volunteers for support and feedback.</li> <li>● Organize visits to local animal shelters.</li> </ul> <p><b>Stage I: Preparation by Teachers:</b></p> <ul style="list-style-type: none"> <li>● Project Introduction: Explain the importance of designing and building animal shelter boxes.</li> <li>● Demonstrate key aspects of box design and construction.</li> </ul> <p><b>Stage II: Development by Students</b></p> <ul style="list-style-type: none"> <li>● Explore Design Principles: Discuss elements such as durability, comfort, and safety.</li> <li>● Develop Box Designs: Students outline their designs, choosing suitable materials and features.</li> <li>● Create Prototypes: Students build small-scale prototypes to test their designs.</li> </ul> <p><b>Stage III: Configuration &amp; Results</b></p> <ul style="list-style-type: none"> <li>● Testing and Feedback: Students use and share their boxes, collecting feedback on usability and comfort.</li> <li>● Presentation to Class: Each group presents their boxes, explaining design choices and how they meet animal needs.</li> <li>● Discussion of Improvements</li> </ul>
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*\* under development the final elements of the framework*

3. Objectives and Methodologies	
<p>Learning Goals and Objectives</p>	<ul style="list-style-type: none"> <li>● Understand the needs of animals in shelters.</li> <li>● Apply design and engineering principles to create practical products.</li> <li>● Develop skills in design, prototyping, and construction.</li> <li>● Enhance creativity, problem-solving, and collaboration skills.</li> <li>● Present results effectively.</li> </ul>
<p>Learning Outcomes and expected Results</p>	<ul style="list-style-type: none"> <li>● <b>Apply</b> design and engineering principles to create durable and safe boxes.</li> <li>● <b>Understand</b> animal behavior and needs in the context of shelters.</li> <li>● <b>Create</b> full-scale box prototypes.</li> <li>● <b>Present</b> and evaluate design projects.</li> <li>● <b>Relate</b> science, technology, arts, and community service to real-life applications, social service and volunteering.</li> </ul>
<p>Prior Knowledge and Prerequisites</p>	<ul style="list-style-type: none"> <li>● Basic understanding of animal needs.</li> <li>● Collaboration skills.</li> </ul>
<p>Motivation, Methodology, Strategies, Scaffolds</p>	<ul style="list-style-type: none"> <li>● Project-based learning.</li> <li>● Collaboration with local animal shelters.</li> <li>● Encouraging creative thinking and innovation through practical application.</li> <li>● Motivating through empathy and love for the animals.</li> </ul>

## 4. Preparation and Means

Preparation, Space  
Setting, *Troubleshooting  
Tips*

- Classroom setup for group work.
- Access to materials and tools for construction.
- Necessary tools.
- Safety equipment.

Resources, Tools,  
Material, Attachments,  
Equipment

- Materials for box construction (cardboard, wood, etc.).
- Safety equipment (gloves, goggles).
- Tools for cutting and assembling materials.
- Measuring tools and scales.
- Projector or screen for demonstrations and presentations. Projector or screen for demonstrations and presentations.

*Health and Safety*

Safety when handling different tools and materials. Needed protective gear!

## 5. Implementation

Instructional Activities,  
Procedures, Reflections

### **Lesson 1: Introduction to Animal Shelters and Box Design**

Duration: 40 minutes

Activities:

- Introduction to the project and its objectives.
- Discussion on the needs of animals in shelters.

### **Lesson 2: Trip to a Local Shelter**

Duration: Trip

Activities:

- A field trip to a local shelter.
- Further discussion with the shelter employees.

### **Lesson 3: Brainstorming and Prototyping**

Duration: 2x40 minutes

Activities:

- Students brainstorm and outline their box designs.
- Begin creating small-scale prototypes.

### **Lesson 4: Design Review and Construction**

Duration: 2x40 minutes

Activities:

- Present prototypes for feedback.
- Construct full-scale box designs.

### **Lesson 5: Testing and Evaluation**

Duration: 2x40 minutes

Activities:

- Test the boxes with real animals.
- Gather and discuss feedback.

### **Lesson 6: Final Presentation**

Duration: 2x40 minutes

Assessment - Evaluation	<p>Activities:</p> <ul style="list-style-type: none"> <li>● Prepare and present the box designs.</li> <li>● Reflect on the project and discuss improvements.</li> <li>● Feedback during the development process.</li> <li>● Final evaluation of the boxes based on durability, comfort, and safety.</li> <li>● Peer and self-evaluation: Students evaluate their own and peers' contributions and learning experiences.</li> </ul>
Presentation - Reporting - Sharing	<ul style="list-style-type: none"> <li>● Class presentations: Students present their box designs with demonstrations.</li> <li>● Community engagement: Present designs to local shelter representatives.</li> </ul>
<i>Extensions - Other Information</i>	<ul style="list-style-type: none"> <li>● Collaboration Opportunities: Foster partnerships with local animal shelters or educational institutions for future projects and mentorship.</li> </ul>