Abstract: Food and Sustainability are important components of urban strategies around the world, and learning and education are essential elements in such strategies. So is participation and engagement from citizens and young people. But how can important elements of sustainable and healthy urban food strategies be developed—not only on the desktops of city planners—but in a participatory and empowering way? And how can we take advantage of the new potentials offered by digitization? This presentation explores the potentials of smart learning about Food and Sustainability for young people and citizens. It builds on the insights from the Foodscape Lab and the Gastronariumpilot study at Boxtown Aalborg and will display different examples of such approaches and show practical examples of didactics to be used in both formal school settings, in university settings, and in street and citizen science settings. The presentation gives examples of how smart EduTech can play a role in teaching about food and nutrition in school. The presentation takes as a point of departure cases where learning about food has been developed using the STEM principles as the foundation for learning about science, technology, engineering, and mathematics. The presentation includes examples of smart devices such as the Robofood, the Virtual Shopper, the VeggieMatchi, and the FoodDome.
**What problem do we address?**

Life science approach  
Everyday life approach

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**The Sapere method**  
a conceptual foundation

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**What we do**  
and what we dont do

<table>
<thead>
<tr>
<th>Rational choice model</th>
<th>Agile plan as U go</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan everything in detail</td>
<td>Make a transdisciplinary group</td>
</tr>
<tr>
<td>Ask for a budget to cover all</td>
<td>Write a pitch</td>
</tr>
<tr>
<td>Get all teh background info you need</td>
<td>Get some seed money</td>
</tr>
<tr>
<td>Get in your project room</td>
<td>Take advantage of the knowledge triangle and PBL</td>
</tr>
<tr>
<td>Close the door</td>
<td>Keep the door open</td>
</tr>
<tr>
<td>Come out once you are done</td>
<td>Create a fast prototype</td>
</tr>
</tbody>
</table>

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**STEM principles for learning about**  
science, technology, engineering, and mathematics.

- Originates from the National Science Foundation, from the 1990s,
- often used in relation to graduate and post-graduate courses
- seldom concerned with elementary or secondary school settings.
- Learn how to cope with a problem on the individual, social and global levels (Bybee, 2010).

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**Foodscape PBL challenge #1**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Need for more sustainable urban food systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Smart aquaponics</td>
</tr>
<tr>
<td>Learning goal</td>
<td>To know about circular nutrient systems and smart data acquisition</td>
</tr>
</tbody>
</table>
Biological Selfregulation & Autopoiesis in a low cost Smart Urban Farming tabletop unit

Problem
Unhealthy eating and obesity due to obesogenic environments

Technology
Smart edu Robotics

Learning goal
To know about shop design and how robotics can be used in classroom

RoboFood
**Foodscape PBL challenge #3**  
**Problem**: Lack of knowledge about the sensory properties about food  
**Technology**: Smart bio sensorics  
**Learning goal**: To know about the active bio compounds in plant foods and how biosignals can be measured the smart way

- Habanero, Jalapeno or Trinidad Scorpion  
- Scoville scale or BioSensorics

**Foodscape PBL challenge #4**  
**Problem**: Kids don’t know basic food commodities  
**Technology**: Low cost VR technology based on the Samsung Gear  
**Learning goal**: To increase vocabulary about basic plant foods and increase familiarity with VR as a learning tool
DietVersity4U

Foodscape PBL challenge #5

<table>
<thead>
<tr>
<th>Problem</th>
<th>Lack of knowledge about sustainable diets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Collective “sourround sight” video game tech</td>
</tr>
<tr>
<td>Learning goal</td>
<td>To teach basic knowledge about plant based diets using social learning</td>
</tr>
</tbody>
</table>

The concept of a dome

Play the Broccoli
**Foodscape PBL challenge #6**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Low familiarity with plant based commodities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Augmented reality technology using kids own mobile</td>
</tr>
<tr>
<td>Learning goal</td>
<td>Basic nutritional needs</td>
</tr>
</tbody>
</table>

**Effects of design of the VeggiMatchi game**

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**An educational application**