

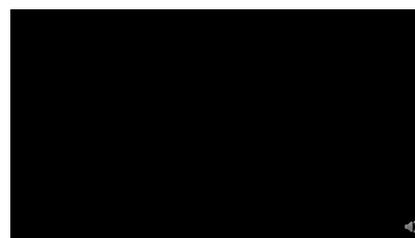


Look at the fifth column being the pinch to connect the interest of the target groups by valuing, reviewing, symbols to gain those interests. The sixth column shows the main target group of the experiment/projects. The goal of the table is to summarize already existing and interesting learning stations that might be relevant to integrate in an educational setting, therefore it's important to have the last columns for the purpose of elaborating the learning stations for those interested.

| Title   | Food and Health Relevance   | Scientific Reference                               | Technology Involved         | Pinch  | Target group      | Further information                   |
|---|---|--|-----------------------------|--|-------------------|---------------------------------------|
| 1. Different doughs: How different ingredients affects the pinch! | Learn about how dough rises                                       | The science behind the rising of doughs            | Oven and kitchen appliances | Which variations does dough react to when made with different ingredients? | Primary Education |                                       |
| 2. Make your own potato flour                                     | Learn about the extraction of non-water-soluble substance         | Separation methods of non-water-soluble substances | Kitchen appliances          | Can you make your own potato flour?  | Primary Education |                                       |
| 3. Popcorn: How big can popcorn be?                               | Learn about the physical reaction of popcorn when heat is applied | The science behind why popcorn pops                | Heat and kitchen appliances | How does corn kernel react when heat is applied?                           | Primary Education | <a href="#">Popcorn Investigation</a> |

|   |   |   |                    |  |                   |                              |
|---|---|---|--------------------|--|-------------------|------------------------------|
| 2. Which food belongs together?             | Learn to differentiate and organize food into their respective group of the plate model | Learning base about micro and macro nutrients                                 | Pictures           | In your diet, where?   | Primary Education |                              |
| 5. How to make pancakes                     | Put in practice with food origin and its preparation processes                          | Theoretical knowledge of food origin and processes                            | Pictures           | Do you know how to make pancakes?                              | Primary Education |                              |
| 6. Identification of food                   | Learn about production origins  | Learn about production origins  | Pictures           | Which farmers provides different products?                     | Primary Education |                              |
| 7. Eggs and temperature                     | Learn about how raw eggs react to temperature   | Learn about how proteins coagulate when heated by heat                        | Kitchen appliances | How protein coagulate when exposed to increase of temperature? | Primary Education | <a href="#">Science link</a> |
| 8. Butter: An opportunity to preserve cream | Learn about milk preservation techniques  | Learn about the different components of milk and how the mixture is processed | Kitchen appliances | How to make butter from milk?                                  | Primary Education | <a href="#">Hej Life!</a>    |

|  |  |  |   |  |                           |                           |
|--|--|--|---|--|---------------------------|---------------------------|
| 9. Cuddling                              | Learn the process of curdling with cheese rennet     | How enzymes in rennet help to coagulate milk proteins when curdling              | Heat, cheese rennet and kitchen appliances                            | Do you know how to make cheese from milk?                    | Primary Education         |                           |
| 10. Where can one find starch?           | How much starch is contained in different food items | How to measure quantity of starch by reacting the reaction of iodine with starch | Kitchen appliances and Iodine   | Do you know how much starch is contained in food?            | Primary Education         |                           |
| 11. Decomposition of starch in the mouth | How starch breaks down in the mouth                  | How starch reacts to the amylase enzyme  | Kitchen appliances and Iodine   | Did you know that the digestion starts already in the mouth? | Primary Education         |                           |
| 12. Is there iron added to food?         | Learn how to detect if there is iron in food         | Learn about oxidation and reduction reactions                                    | Magnetic stirrer  | Did you know that iron is part of our diet?                  | Lower Secondary Education |                           |
| 13. Is there sulfur dioxide in fruits?   | Learn preservation techniques for fruits             | How sulfur dioxide (gas at room temperature)                                     | Hydrogen peroxide solution, barium chloride solution, Benedict, 20 ml | Do you know how fruits are preserved?                        | Lower Secondary Education | <a href="#">Hej Life!</a> |



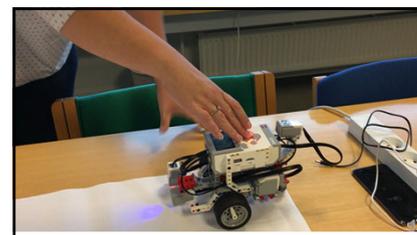
**This is how we work**

1. Briefing - Supervisor introduce what you need to know about the topic of the learning station.
2. Students/science pilots synthesise the information and give their impression and view of what the learning station should do. Q&A sessions: Students/science pilots ask questions to supervisor
3. Students/science pilots start working on trying to specify a learning program for their class mates.
4. Each station will do a Powerpoint on "what you are doing". Students/science pilots needs to relate to which of the SDG's the learning station is related
5. Students/science pilots plan how to present - and who should do it - by the end of the day (at 15:00 in the sofa)

**Four lab stations**

- Urban Food lab - Design & control your own aquaponics facility for fish farming and micro greens growing.
- Kimchi lab - create a spicy fermentation process - with a New Nordic twist
- Jalapeno & Habanero chili hot spot - create a learning lab for smart biometrics to measure consumer and get a chili kick for free
- Robofood corner - program your Lego Robot to find the five basic flavors in the pantry





### Learn & understand fermentation in Kimchi Lab

Three fates of pyruvate produced by glycolysis

**Anaerobic**  
Ethanol fermentation

**Anaerobic**  
Lactic acid fermentation

**Anaerobic**  
Homolaktisk fermentering

Digital data opsamling:

- pH måling
- Bakteriel

### Smart Urban food: STEM principles

Use of 21st Century Science, Technology, Engineering and Mathematics principles in educational learning

|  |   |  |   |
|--|---|--|---|
| <p><b>Science:</b> Identify problems and use the problem-solving process</p> <ul style="list-style-type: none"> <li>• Brewing Beer &amp; Sourdough: a practical, sustainable urban food production system that integrates biostructure with hydroponics in which nitrogen is efficient from the fish production through the plant growth.</li> <li>• Nutrient needs of plant and fish</li> <li>• Nutrient cycle between plant and fish</li> <li>• Role of bacteria for nutrient cycle</li> <li>• Different variables of plant and fish growth (pH, temperature, nutrient, pH value and so on)</li> </ul> <p><b>Role of teacher:</b> to guide student to understand what are scientific process behind plant growth, nutrient cycle and whole ecosystem</p> | <p><b>Technology:</b> Equipment and software used to measure, record, analyze, surfaces and present data.</p> <ul style="list-style-type: none"> <li>• Use of sensor to measure water temperature, water pH value, nutrient present &amp; ammonia content</li> <li>• Use of motor to circulate water</li> <li>• Use of light to plant</li> </ul> <p><b>Role of teacher:</b> to guide student to understand the role of technology in the system. Can we offer the technologies for some function?</p> | <p><b>Engineering:</b> Engineering design an innovation along process to learn to design suitable student</p> <ul style="list-style-type: none"> <li>• Design of creating system for water cycle</li> <li>• Design of placement of reservoir and hydroponics</li> <li>• Appearance of whole Aquaponics system</li> </ul> <p><b>Role of teacher:</b> to guide student to follow that process of problem solving such as: how can we design water cycle and development of innovation and hydroponics?</p> | <p><b>Mathematics:</b> Math concepts are directly integrated in this system, calculate and monitor data.</p> <ul style="list-style-type: none"> <li>• Analysis of nutrient need for both plants and fish</li> <li>• Analyze production of nutrient by both fish and plant to each other</li> <li>• Matching of availability and needs of nutrient for fish and plant</li> </ul> <p><b>Role of teacher:</b> to guide student to use available data from sensor to monitor and understand different variables (pH value, temperature and nutrient) of the system.</p> |
|--|---|--|---|



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**Coding Pirates**

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**Digital Foodscape Studio**

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