IMAGES AND OBJECTS – Active Methodology Toolkit 10
Education for responsible and sustainable lifestyles

Food for Thought

Food for Thought

Toolkit 10 in the Images and Objects – Active Methodology Toolkit series

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1 Introduction

Structure of this toolkit

This toolkit is structured in four main parts.

1	**INTRODUCTION**	The first part presents an introduction to the toolkit, and it explains the structure, target audience and learning objectives of this material. It also provides an overview of the Images and Objects active methodology toolkit series.
2	**BACKGROUND**	The second part provides a background on the key concepts that frame the issues covered in this toolkit and how these may be addressed through education for responsible and sustainable living.
3	**USING THE TOOLKIT**	The third part provides a brief explanation on how to use this toolkit and the activities contained within. It also explains the learning methodology employed in this toolkit.
4	**LEARNING ACTIVITIES**	The fourth part contains the primary teaching materials of this toolkit. Nine different learning activities are presented. Each activity utilises a different graphic organizer to explore a specific theme about food and sustainable living.

Age/Grade Relevance

This toolkit has been designed with the aim to be used in secondary schools (both lower and upper secondary schools), and the content and activities of this toolkit are targeted for students from the age of 12 and up. Primary school teachers, as well as teachers in further and higher education, may be able to adapt some activities and content for use with their students.

Learning Objectives

This toolkit aims at strengthening learners' ability to deal with socio-scientific issues (SSIs) and *Grand Challenges* (i.e., urgent global problems)[1] which relate directly to the pursuit of sustainable development. The activities in this toolkit promote life-long learning competencies in systems thinking, critical thinking and integrated problem solving and advances inter-disciplinary and holistic approaches to learning. Food is used as a unifying language that allows learners to explore the links between behaviours, lifestyles and sustainable development across complex systems.

[1] See Fensham P. J. (2012). Preparing Citizens for a Complex World: The Grand Challenge of Teaching Socio-scientific Issues in Science Education. In A. Zeyer & R. Kyburz-Graber (Eds.), *Science | Environment | Health*. Dordrecht: Springer.

Images and Objects
Active Learning Methodology

The *Images and Objects* toolkits are a series of learning resources focused on developing active learning methodologies to promote student-centred activities and encourage students to question the way they think, the values they hold and the decisions they make in the context of responsible and sustainable living. Learners need to be able to construct their own understanding, meaning and values, as a step in the collective search for a sustainable future. Active teaching and learning methodologies facilitate this process by offering opportunities for interaction between educators and learners, learners themselves, and with direct connection to real-world challenges and every day issues.

The toolkits all use images and objects to help teach responsible and sustainable ways of living in an active, experiential, interactive, practical and holistic way. Each toolkit tackles a different topic related to sustainable living, and they each utilise a different active learning theory or approach. The work on this series began over ten years ago based on the collaboration of teachers and researchers working with the themes of sustainable consumption and responsible living. The Consumer Citizenship Network (CCN) and the Partnership for Education and Research about Responsible Living (PERL) provided a foundation for this collaboration, and now this continues through the network of the UNESCO Chair on Education for Sustainable Lifestyles.

Table 1. Overview of the previously published PERL active methodology toolkits

	Title	Topic	Learning Approach
1	Images and Objects	Sustainable development	Active learning with images and objects
2	Personal Consumption and Climate Change	Impacts of consumption and lifestyles on climate change	Strategic questioning and critical thinking
3	Financial Literacy	Personal finance management, spending and consumption habits	Game play and dilemma challenge
4	Time as a Resource	Resource usage, time as a resource, future thinking and planning	Model for action and change
5	What's the Story?	Responsible and sustainable living	Storytelling and narratives
6	The Power of Media	Media literacy, responsible living, and sustainable development	Howard Gardner's Multiple Intelligence Theory
7	Why Buy? The symbolic value of consumption	Reasons and purposes for consumption and their links to sustainable living	Edward De Bono's CoRT thinking tools
8	Dare to Differ	Sustainable living through investigations into alternative lifestyles	Inquiry-based Learning Cycle (i.e., 5Es model)
9	Education for Sustainable Consumption through Mindfulness	Sustainable consumption and responsible living	Mindfulness practice and personal reflection
10	Food for Thought	Sustainable lifestyles, food production and consumption	Graphic organizers and Adapted Pathways Learning Model

The Centre for Collaborative Learning for Sustainable Development

The Centre for Collaborative Learning for Sustainable Development (CCL) is a research and learning centre based at Inland Norway University of Applied Sciences. The Centre holds the UNESCO Chair on Education for Sustainable Lifestyles. CCL aims to contribute to national and international projects on education for sustainable development and to strengthen partnerships on this topic. The University has over 20 years experience coordinating international research collaboration on consumer education and education for sustainable lifestyles.

The Centre works to advance knowledge at all levels of society, from the classroom to national and international levels. CCL promotes active learning approaches and produces educational toolkits on topics including consumer issues, sustainable lifestyles, and social learning. The Centre supports policy development and provides curriculum guidance. By participating in public debates, CCL aims to strengthen collective commitments and provide new knowledge for the identification of pathways to sustainable living. The Centre contributes to the implementation of the Sustainable Development Goals, and is an active partner in international programmes including the Global Action Programme on Education for Sustainable Development (led by UNESCO) and the 10-Year Framework of Programmes (10YFP) on Sustainable Consumption and Production (coordinated by UN Environment).

The Partnership for Education and Research about Responsible Living (PERL) is a network of educators and researchers developing methods and materials to encourage people to contribute to constructive change through the way they choose to live. PERL partners research social innovation and responsibility; give visibility to creative communities that collaboratively invent new ways of living; promote education for sustainable development, especially for sustainable lifestyles; develop teaching methods and resources; provide reference and guidance; develop values-based indicators; and produce policy recommendations for education for sustainable lifestyles. PERL partners come from universities and civil society organisations from around the world. PERL is a part of the UNESCO Chair on Education for Sustainable Lifestyles and is coordinated by the Centre for Collaborative Learning for Sustainable Development.

CCL PERL

2 Background

Education for Sustainable Development

The goal of Education for Sustainable Development (ESD) is to empower individuals and communities to actively participate in shaping an ecologically sustainable, economically efficient and socially just environment, while remaining mindful of the interconnectedness between the personal, local and global dimensions. Learning about how our lifestyles relate to sustainable development and the impacts they have is a key dimension of ESD. Through ESD, learners are able to gain critical life skills and the capacity to be active in the pursuit of sustainable development. ESD is thus seen as an integral part of quality education and lifelong learning. It focuses on holistic and transformational education, which addresses learning content and outcomes, pedagogy and the learning environment.

ESD, with its focus on building the skills for quality lifelong learning and the collaborative relationships for collective problem solving, aims to enable learners to make connections between existing knowledge in local contexts when learning abstract concepts, thus allowing personal knowledge and academic concepts to develop together (Laurie et al., 2016: 3-4). This process of learning focuses on the socio-cultural processes of meaning making that occur when learning draws connections between "existing experience and context and more abstract forms of representation" (Lotz-Sisitka, 2013: 23), and is a key to education that can support social change and transitions towards sustainability.

UNESCO (2017) identified eight *key competencies for sustainability* that represent the cross-cutting skills and abilities that are necessary for all learners of all ages worldwide to actively participate in the global challenge of advancing sustainable development. These competencies are transversal, multifunctional and context-independent, and provide an effective basis for lifelong learning. They cannot be taught, rather they must be developed by the learner themselves. Education can provide the opportunities for learners to work with, explore and develop these competencies. The key competencies for sustainability are:

- ✓ Systems thinking competency,
- ✓ Anticipatory competency,
- ✓ Normative competency,
- ✓ Strategic competency,
- ✓ Collaboration competency,
- ✓ Critical thinking competency,
- ✓ Self-awareness competency, and
- ✓ Integrated problem-solving competency (UNESCO, 2017).

Sustainable Living and the Unifying Story of Food

Pam Warhurst gave a very inspiring talk at TED Salon London in the spring of 2012 where she asked us all a very simple question:

> *"Can you find a unifying language that cuts across age and income and culture that would help people themselves find a new way of living, see spaces around them differently, think about the resources they use differently, interact differently? Can we find that language? Can we replicate those actions? The answer would appear to be yes and the language would appear to be food."*

In her talk, Warhurst also mentioned a moto she and her team of volunteers used to spread their idea of turning plots of unused land into communal vegetable gardens and to change the narrative of food in their community – it is a simple one, and applies to every single one of us "If you eat, you are in". Food is a universal language we all understand and experience everyday; therefore, it is a common ground for starting to shape our sustainable lifestyles.

Food and the Sustainable Development Goals (SDGs)

In September 2015, the 193 member states of the United Nations formed agreement on a global agenda aimed at achieving, over the course of 15 years, the transformational change required to set humanity on a lasting path of sustainable development. The scale and ambition of the 2030 Agenda for Sustainable Development is captured within the 17 Sustainable Development Goals (SDGs) and the 169 targets contained within these goals as agreed by the countries of the world. Ultimately though, the SDGs require that we come together to define new pathways towards prosperity for both planet and people, and that we ask vital questions towards redefining our concepts of human development, what we value, and how we define equity and quality of life.

Food is a topic that crosses and is relevant to all 17 SDGs as it is a complex issue that has deep environmental, social and economic connections. Food is essential for life and is a fundamental part of everyday living, and because of this the production, distribution and consumption of food has far reaching implications for sustainable development. The impacts of food systems can negatively or positively affect both the health and prosperity of people and planet.

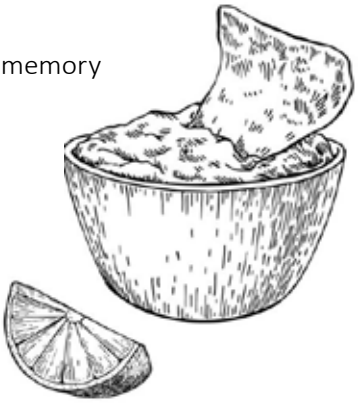
There are many different points of view about what "sustainable food" is and what is within the scope of this concept. In this context, the "sustainability" of food includes a variety of issues, such as the security of food provision, health, safety, quality, employment and growth, as well as environmental impacts, climate change, biodiversity, water and soil quality. A growing number of studies question the long-term sustainability of our food systems and the current trends in food production and consumption. Food systems are very complex and driven by many economic, cultural and environmental factors. A better understanding of these factors, their inter-connections and the impacts they have across the whole system could help develop relevant public policies and practices towards strengthening the resilience of food systems, improving the quality of life of people, and achieving a more sustainable future for all.

3 Using the Toolkit

Introduction to Graphic Organizers

Graphic organizers aid students in developing, organising and summarising their own learning. Graphic organizers can assist students with their thinking and provide visual frames to help them structure disjointed information which is of particular importance in making reasoned personal choices for sustainable living. Graphic organizers facilitate the learning process by providing a scaffold for the development of ideas and the construction of knowledge.

Ausubel's (1960) founding work on the use of advance organizers (which can include graphic organizers) established that learners fare better in learning if new knowledge is introduced not in discrete bits that have to be memorised by rote, but rather if preceded with an organising principle in advance, such as a hierarchy of classifying concepts. The use of such organizers supports a process of deductive reasoning and strengthens the achievement of meaningful learning. Much of the literature available about the benefits of graphic organizers as pedagogical tools emphasise that they:



- ✓ help students transfer knowledge from working memory into long-term memory (Gieselmann 2008; Gil-Garcia and Villegas 2003),
- ✓ by working out the relationships between concepts, using these tools support students to situate new knowledge into their existing background knowledge (Ivie 1998),
- ✓ are flexible and adjustable tools that are easily applied to different situations and contexts (McMackin and Witherell 2005), and
- ✓ improve the academic performance of students with learning disabilities (Ewoldt and Morgan 2017; Hall et al. 2013; Pruisner 1995).

Some graphic organizers are more applicable to specific aspects of the learning process than to others. For example, graphic organizers are well suited for:

- ✓ collecting information
- ✓ comparing and contrasting
- ✓ developing ideas
- ✓ sequencing information
- ✓ summarising and extending thinking and learning

Some graphic organizers are also more relevant to different subjects and topics than others. They can all be used at the various stages of education (primary, secondary, tertiary and higher education). The examples of topics presented in this toolkit however have been developed in line with the capacities of students in secondary education.

Graphic organizers have become a very popular and commonly used pedagogical tool in the classroom, textbooks and other educational materials. Among the most popular graphic organizers are the Venn diagram, KWL (Know, Want to know, and Learned) chart, fishbone diagram, mind map or idea web, and concept map.

The Adapted Pathways Learning Model (APLM)

For the purpose of this toolkit, we simplified and adapted the Pathways Learning Model (Lipton and Wellman, 1998) and linked the three phases of the model with different graphic organizers appropriate to use in different phases of the model. Some graphic organizers are designed simply to get students to generate ideas and get them written down and others compel students to examine relationships between elements of a system of information and beyond.

The Adapted Pathways Learning Model (APLM) presents a three-phased framework for supporting dialogue through the use of data exploration as a key to making connections during the learning process. The three phases of this framework are:

I. ACTIVATING AND ENGAGING

This phase is the same as in the original Pathways Learning Model, and it maintains the same name. The main purpose is to activate learners' prior knowledge, skills and understanding, and engage learners with each other. We all bring with us a wealth of experience, and we know about the context in which we live. We already have prior knowledge about everyday living, so the initial step is to activate this, to have the learners talk to each other about what they already know, and to get this knowledge into their working memory so that new information can build on and connect with it.

Proposed graphic organizers: mind map, idea web & rain droplets. They are designed to get learners to generate ideas, write them down, and begin to explore connections.

II. EXAMINING AND EXPLORING

Once the learners go through the initial phase of activating and engaging, this phase aims for learners to examine one or more of the generated ideas individually, in pairs and/or in groups, as well as to listen to each other's arguments and concerns about the initially developed ideas. Next is a set of engagements, in which learners explore and discover additional information. This could be introduced by a teacher (or facilitator) in the form of, for example, a presentation or an educational resource, or it can be a product of the learners' independent inquiry process.

Proposed graphic organizers: funnel, Venn diagram, matrix, & sequence. They are designed to help learners examine, compare, and contrast the ideas.

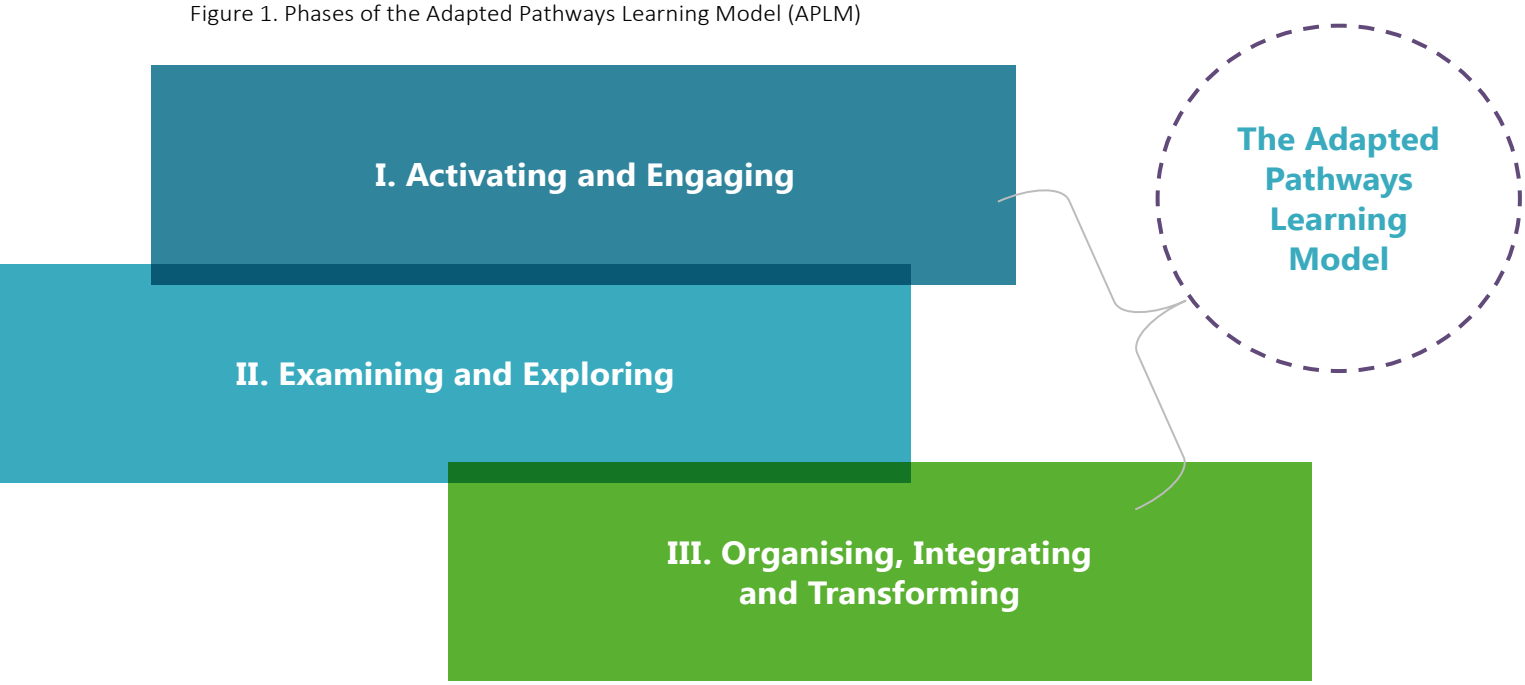
III. ORGANISING, INTEGRATING AND TRANSFORMING

The final phase of the Adapted Pathways Learning Model (APLM) is to motivate learners to organise, integrate and most importantly transform the knowledge and experiences they have gained in the previous two phases to make them more meaningful for themselves (and others). Learners jointly construct, organise, synthesise, integrate, apply and/or transform their ideas and new knowledge into something unique, creative and meaningful for all involved. Achieving meaningful learning in this phase means that the new information is not only well grasped, but also that the learner can now make connections between this new information and other previously known knowledge, aiding in deeper understanding (Ausubel 2000).

Proposed graphic organizers: concept map, fishbone, & stair steps. They are designed to help learners construct, organise, integrate and create new knowledge and meanings.

The second and third phases of this model are as equally important for developing the content of new knowledge as they are for the overall learning process. The important outcome of the discussions enabled by this process is the individual's recognition that there are many levels of "truth" that must be integrated responsibly and collectively in their efforts towards sustainable living. The outcome of this process has little or no value unless it has been well thought out, collaboratively discussed, and adequate time has been given so learners are not rushed into conclusions.

Figure 1. Phases of the Adapted Pathways Learning Model (APLM)



How to use this toolkit?

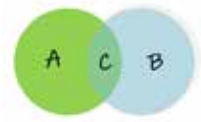
The food and sustainable lifestyles themes selected for the toolkit have been organised around different graphic organizers that can be used as part of separate teaching activities. They are sequenced according to the three phases of the Adapted Pathways Learning Model. An overview of these activities is presented in Table 2.

The toolkit provides short introductions to each theme related to food and sustainable lifestyles as well as real-life examples to contextualise the learning process. Each activity has its own set of instructions, and the required materials are identified. The objectives for each activity are linked to the phase of the Adapted Pathways Learning Model to which it is connected.

The activities are designed in a flexible manner so more or less time could be spent on individual activities to meet the needs and interests of the students and the lesson. As a teacher, you may also choose to adapt and use the suggested activities with different themes. Teachers are encouraged to use the activities that suit their students best, stimulate their interests and relate to local contexts. Where possible, it is also encouraged that the teacher or students may add additional resources, materials, or images that provide greater connection and relevance to local contexts, challenges, and lifestyles.

Table 2. The phases of the Adapted Pathways Learning Model and proposed graphic organizers.

Learning Activity	Graphic Organizer	APLM Phase	Description	Theme / Topic
1	Rain drops	I	Rain drops can be used for the generation of ideas in any subject. Useful when we seek ideas or understanding on a new topic. Usually this is done in a whole class context or in small groups using an organizer to give focus to the work.	Food as substance for healthy lifestyles
2	Mind map	I	A mind map is used to visually organise information. It is often created around a single concept in the center of a blank page, to which associated representations of ideas such as images and words are added.	Food Security & Insecurity
3	Funnel	II	Funnel is useful when synthesising ideas or reducing a body of information to its core, for example, for creating a definition. All details, components or parts of the information or picture are placed inside the funnel. They emerge as a conclusion, definition or synthesis.	What do you like to eat? Food preferences throughout the seasons

Learning Activity	Graphic Organizer	APLM Phase	Description	Theme / Topic
4	**Venn diagram** 	II	The Venn diagram is a simple and effective organizer for examining the similarities and differences between two items. It consists of overlapping closed curves, usually circles, each representing a set.	Responsible and sustainable food choices
5	**Matrix**	II	Compare and contrast matrix is a graphic organizer that allows learners to see similarities and differences of multiple concepts in one area.	Sources of Protein
6	**Cornell (Pauk) method**	II	The Cornell method provides a note-taking system that functions similarly to graphic organizers, where the learner creates his or her own notes. There are three sections: in the left recall column, the learner writes cues or key words, the right is for note taking and the bottom is for summary.	Zero Hunger
7	**Sequence**	III	Sequence is used when a topic involves a sequence of events. It is particularly useful when sequential factors need to be put in order and remembered.	Industrial Processing & Production of Food
8	**Fishbone**	III	Fishbone is a way to summarise information in one coherent space. It helps to organise and structure the information in a comprehensible form.	Learning about others through traditional cuisines
9	**Stair steps**	III	Stair steps is used when a topic involves a step by step process or for plotting a course of action.	Food Waste

"Making conscious choices about what we eat, based on what the earth can sustain and what our bodies need, can help remind us that our whole society must begin to balance sustainable production with human need."

– Frances Moore Lappé –
(author of *Diet for a Small Planet*)

4 Learning activities

Activity 1

Food as substance for healthy lifestyles

Rain Drops Graphic Organizer

SDGs related to the activity

Objectives

This activity uses the Rain Drops diagram to encourage students to discuss the importance of food as substance for healthy lifestyles. It is ideally used with students to generate ideas or for thought showering in relation to a particular topic.

Materials needed

- a set of images
- a template of the Rain Drops diagram to be used in the classroom

How the activity works

1. Students should work in groups (4-5) or as a whole class.

2. Each group is provided with a set of images and a blank template of the Rain Drops diagram. This diagram involves an umbrella, and above and below there are several rain droplets.

3. Students focus on how and why food contributes to healthy lifestyles. They can use the food images on display to explore different connections between food and health issues. For example, they may discuss:

- food high in fat, sugar and salt
- fresh fruit and vegetables
- animal and vegetable protein
- balanced diet
- nutritional composition of food
- highly processed food
- balance of energy in vs energy out
- over and under consumption of food
- diet-related disorders.

4. Once the group collectively decides on which images contribute to achieving a healthy lifestyle, they write the topic and place the image in one of the rain drops. Note: There are many paths to healthy lifestyles, and not all paths may be context or culturally relevant.

5. Each group then has an opportunity to present on which images they selected and why. A class discussion follows which is facilitated by the teacher and focuses on the following discussion points:

a) Healthy and balanced approach to food consumption.
b) Importance of developing a healthy relationship with food.
c) How food contributes to health and wellbeing.

Activity 2

Food Security & Insecurity

Mind Map Graphic Organizer

SDGs related to the activity

Objectives

This activity uses the Mind Map diagram to motivate students to explore the concept of food security/insecurity. Students are encouraged to investigate and discuss images and words associated with food security/insecurity and add them to the mind map.

Materials needed

- a set of images
- a template of the Mind Map diagram to be used in the classroom

How the activity works

1. Students should work in groups (4-5).

2. Each group is provided with a set of images and a blank template of the mind map diagram. This diagram involves a central point where the topic (i.e., food security/insecurity) can be inserted and words/images relating to this can be arranged in a non-linear, colourful way around the central topic.

3. Students can explore the concept of food security/insecurity and focus on describing these elements:

- causes
- impacts
- environmental events that can lead to insecurity
- consequences of change in traditional diet
- impact on health systems
- control and supply of food
- food mountains
- food ethics
- role of national/international agencies and governments
- food poverty
- food banks.

Students use the images as stimulation to engage in a discussion around food security/insecurity. They record the key points on the mind map.

4. The group work is followed by a class discussion which is facilitated by the teacher. The class compares and contrasts the topics which have been included in their respective mind maps. The teacher may also create a collective mind map of the discussion and all groups may add their points.

Activity 3

What do you like to eat? *Food preferences throughout the seasons*

Funnel Diagram Graphic Organizer

SDGs related to the activity

Objectives

This activity uses the funnel diagram which is useful when synthesising ideas important for making decisions about seasonal food choices and preferences. Students consider their food preferences, dietary guidelines, and availability (growth period of food products, climate, price, transport costs, etc.) of food products throughout the seasons.

Materials needed

- a set of images of food items
- image of a food plate or food pyramid
- a template of a funnel diagram to be used in the classroom

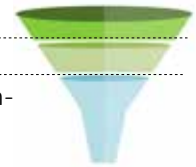
How the activity works

1. Students should work in groups (3-4).

2. Each group is provided with a set of images, a template of a funnel diagram and dietary or nutritional guidelines, such as an image of a food plate or food pyramid model.

3. Students find and select images of food items that they like to eat. They then compare their selections with others and reach agreement on which are the most popular food preferences. They then place these images above the funnel diagram.

4. Next, groups discuss the purpose of using a funnel diagram – it is used to evaluate their choices, to synthesise them and reduce the number of food images according to a three tiered criteria:
   a) food preferences,
   b) dietary or nutritional guidelines, and
   c) availability of food proucts throughout the seasons.



5. When selecting the images that will run through the funnel, at the second tier students can use the image of a food plate or food pyramid for dietary/ nutritional guidelines.

6. In relation to the third tier of the funnel, students can use a table to compare food preferences across seasons (spring, summer, autumn, and winter), and they can look for alternative food items that have similar nutritional properties and are available at different times of the year. Students can study online about seasonal growth of fruits and vegetables, the origin of food products, preserving foods, etc.

Spring	Summer	Autumn	Winter

Activity 4

Responsible and sustainable food choices

Venn Diagram Graphic Organizer

SDGs related to the activity

Objectives

This activity uses a double Venn diagram to stimulate students to examine and explore their food choices taking into account the full life cycle of food products and personal food preferences.

Materials needed

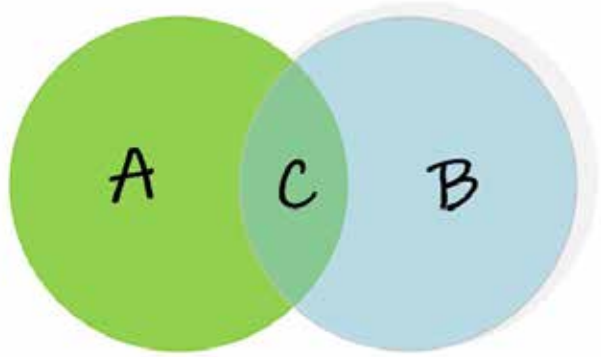
- a set of images
- a template of a Venn diagram to be used in the classroom

How the activity works

1. Students should work in groups (3-4).

2. Each group is provided with a set of images and a template of a Venn diagram to be used in the classroom. The double Venn diagram involves two circles (A and B), which partly overlap, creating a third, joint region (C).

3. Students could focus on the origin, agricultural growing and production, food processing, packaging and distribution, preparation and consumption, and end of life of food products displayed on provided images.



Students should discuss food products displayed on images and collectively decide if they are sustainable (region A) or unsustainable (region B) food choices and why. If they cannot come to common agreement, because they see 'positive and negative sides' they should place them to region C. If students struggle with indicators of sustainable or unsustainable food choices, the teacher can help them with hint words like:

- food miles (kilometres)
- human health
- food production
- food ethics
- water footprint
- overconsumption.

A life cycle assessment (or a cradle-to-grave analysis) is a standard technique used to calculate a product's environmental impacts and aims to account for all stages of a product's life from raw materials, through processing and distribution, to use, disposal and waste management. Students should consider the full life cycle of the food products they are working with.

4. Group work is followed by class discussion facilitated by the teacher. It is important to remind students of the purpose of the discussion. Each student or group should contribute at least one point from their group discussions. They should compare their decisions (and argumentations) among groups for a particular food item. Particularly interesting and fruitful for the class discussion can be to focus on the more controversial group decisions or food items placed in region C, and to have students expand on the positive and negative sides and discuss their various argumentations.

Activity 5

Sources of Protein

Matrix Graphic Organizer

SDGs related to the activity

Objectives

This activity uses a Matrix diagram to encourage students to investigate the various sources of protein.

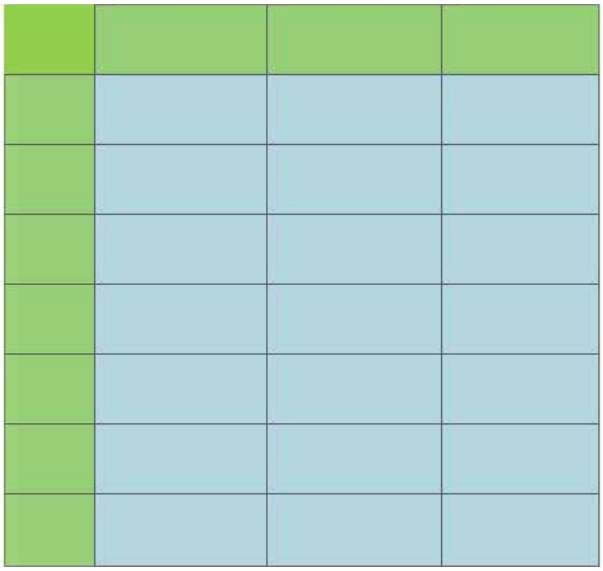
Materials needed

- a set of images
- a template of the Matrix diagram to be used in the classroom

How the activity works

1. Students should work in groups (4-5).

2. Each group is provided with a set of images and a blank template of the matrix diagram. This diagram is useful for organising a topic according to set criteria and it provides a structure for examining the available information. Depending on the topic and the number of criteria examined, the size and number of boxes used in the matrix can be adjusted.



3. The teacher can identify the criteria and ask students to compare and contrast various protein sources (animal, plant, insects, fish, etc.) using some or all of the following criteria:

- how it is produced as a source of food
- demand and consumption levels in different regions of the world
- environmental impact of its production
- food products produced
- nutritional considerations
- dietetic value
- culinary uses.

The teacher can give a template with these criteria already included or students can complete it on a blank template. For this activity, the protein sources can go along the top of the matrix with the criteria for comparison down along the side of the matrix.

Students complete the matrix by comparing the protein sources using each of the criteria.

4. The group work is followed by a class discussion which is facilitated by the teacher. The class compares and contrasts the topics which have been included in their respective matrix diagrams.

Activity 6

Zero Hunger

Cornell (or Pauk) Method

SDGs related to the activity

Objectives

This activity uses the Cornell method to stimulate students to examine and explore problems and solutions central to hunger and poverty eradication.

Materials needed

- Description of the SDG 2: Zero hunger available at the UN webpage:

https://www.un.org/sustainabledevelopment/sustainable-development-goals/

- Cornell method template

How the activity works

1. Students first work individually.

2. Each student is provided with a description of the SDG 2: Zero hunger and a Cornell method template. The template is used to take notes from the text and diagrams describing SDG 2. The student can make their own template by dividing the paper into two columns: the notetaking column (usually on the right) is twice the size of the recall column (on the left), where students write their key questions or words, or drawings representing the notes. Students should leave a few lines at the bottom of the page for a short summary.

Students should examine facts about hunger and food security, SDG 2 targets to be achieved by 2030, and further explore the issue on the webpages of international organisations, such as FAO and UNICEF (links are provided in the description of SDG 2). Students write the title on the top of the template. Their title should be appealing and informative. They then individually write their notes into the notes column.

3. Next, students should revise their notes and compile a recall column. We recommend that students try to visualise their key words (i.e., make a small drawing or select an image). It will help them remember learned issues.

4. Students then form small groups (3-4 students) to analyse and compare their findings about the issue. They should especially focus on comparing their recall columns to see how their perceived issues relate to each other's ideas. They can exchange their experiences related to the issue, and they should keep in mind that this is not only a problem in under-developed and developing countries, but it is also happening locally.

5. Students then work individually or in pairs to prepare a short "front page news story" that highlights this issue in an informative way. The article should include 3-5 of the most important messages from their notes. The story may be fictional or based on a real-event, and it may tell a good news story, highlight a need for change, provide a warning, or report on a catastrophe. Students may also select a suitable image to go with the story. Students then read their stories to the class and discuss.

Activity 7

Industrial Processing & Production of Food

Sequence Graphic Organizer

SDGs related to the activity

Objectives

This activity uses the Sequence diagram to stimulate students to examine and explore the industrial processing and production of food.

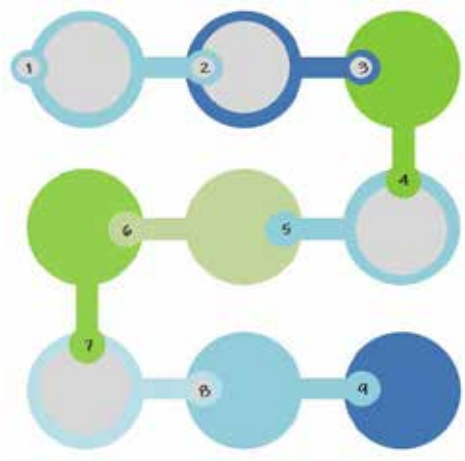
Materials needed

- a set of images which shows the steps in the industrial processing of a food item or product
- a template of the Sequence diagram to be used in the classroom

How the activity works

1. Students should work individually or in pairs.

2. Each student or pair is provided with a set of images and a blank template of the sequence diagram. This diagram is useful for examining a topic which requires multiple events to be put in order of sequence and remembered. The sequence template involves a series of boxes with an arrow demonstrating the correct order of sequence.



3. The teacher selects a food item or product that is produced/processed using industrial techniques, e.g. meat products, canned food products, flour, tortillas, pasta, ready-made meals, breakfast cereals, cheese, snack foods, etc. Each stage in the processing is represented by an image and the sequence is presented to the student in a jumbled up order.

Students are asked to correctly re-order and sequence the steps in the industrial processing of the food item or product. Each student or pair can be given the same set of images or a different food item/product to sequentially order. A time limit can be set on the activity.

4. If different food items or products are used in class, then each student or pair has an opportunity to present their item/product and explain the sequence steps in the processing. If the same food item/product is used with all students, then one student is asked to present and any disagreements should be discussed.

5. A class discussion follows, facilitated by the teacher, which can focus on the following discussion points:

- The nutritional impact of processing on the original food.
- The environmental impact of the processing technique.
- The added-value and market-value of the final processed food item/product compared to the original food source or ingredients.

Activity 8

Learning about Others through Traditional Cuisines

Fishbone Diagram Graphic Organiser

SDGs related to the activity

Objectives

This activity uses the fishbone diagram to encourage students to examine and explore traditional cuisines, to promote and increase local food consumption, and to learn more about the diversity of food-related traditions and cultures. Food can be a very convenient theme for introducing a new country, region, or culture to your students.

Materials needed

- a set of images
- a template of a fishbone diagram to be used in the classroom

How the activity works

1. Students should work in groups (3-4).

2. Each group is provided with a set of images and a template of a fishbone diagram to be used in the classroom. The fishbone diagram involves a fish head, which in our case represents an image of the studied traditional food.

The fish's head is connected with the backbone (straight line connecting the head and tail) to large and small bones.

3. Students could explore different topics related to traditional food, like the origin of food (country, region), production of ingredients, food miles or kilometres, healthy eating, calorie intake, food-related traditions, sustainable food choices, food preparation, etc.

Each large bone should be named with one topic. Groups of students can explore either only one topic (bone) or the whole diagram, depending on the level of the class and difficulty of the topics. On the small bones, students write different facts or key words that will help them explain the topic (listed on the large bone) in the discussion that follows. Teachers can provide students with learning materials to help them explore the topics or direct them to relevant literature or the internet.

4. Group work is followed by a class discussion facilitated by a teacher. Each group should present their findings. Discussions are particularly fruitful if groups have explored different traditional cuisines and when the activity is done with a multi-cultural group.

The teacher may also prepare a composite version of the diagram, and all groups can add points to it as part of their discussion.

5. Additionally, this activity could be used as an introduction to a cooking class where explored foods are also prepared and consumed. It can also provide an opportunity to explore how different cultures are influenced by their food habits and traditions.

Activity 9

Food Waste

Stair Steps Graphic Organizer

SDGs related to the activity

Objectives

This activity uses the stair steps graphic organizer to encourage students to consider their use of food and examine strategies and processes to minimise food waste.

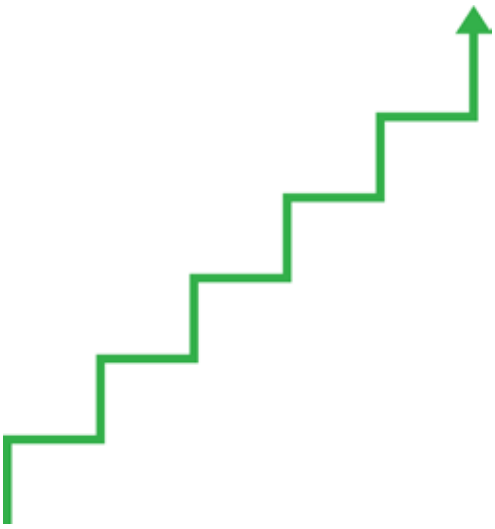
Materials needed

- a set of images which shows food waste
- a template of the Stair Steps diagram to be used in the classroom

How the activity works

1. Students should work in pairs or as a small group.

2. Each group is provided with a set of images (which relate to food waste from one of the perspectives outlined in step 3) and a blank template of the stair steps diagram. This diagram is useful when a topic involves a step-by-step process or for plotting a course of action.



3. The groups are each assigned the task of minimising food waste from one of the following perspectives:
- farmer
- commercial producer of food products
- supermarket
- restaurant
- school
- family.

4. Students are asked to identify a step-by-step strategy for minimising food waste. A time limit can be set on the activity.

5. If time allows, groups can be given the opportunity to present their strategy to the rest of the class.

6. A class discussion follows, facilitated by the teacher, which can focus on the following questions:
- How and why do farmers; commercial producers; supermarkets; restaurants; schools and families contribute to food waste?
- What are the environmental impacts of food waste?
- What are the social impacts of food waste?
- What are potential strategies to minimise food waste, in relation to each of the different perspectives? How do these strategies compare and differ?
- What can an individual do to reduce food waste and the impacts that it causes?

5 Visual Resources

The following section provides a small sample of images that can be used to get started with the activities described in this toolkit. An online image bank has also been prepared to further support the use of this toolkit, and here you can download both larger print versions of the graphic organizers presented in this toolkit and many more images that will be useful for these activities. Teachers and students may also find their own images from their own local contexts and cultures to use with the activities in this toolkit.

The *Food for Thought* image bank may be accessed at the following link:
http://food4thought.livingresponsibly.org

FOOD FOR THOUGHT Image: Farmer in Rice Field Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Strawberry Production Photo: Colourbox.com
FOOD FOR THOUGHT Image: Chicken Farm Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Bananas Photo: Colourbox.com
FOOD FOR THOUGHT Image: Seasonal Vegetables Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Onions in a Field Photo: Colourbox.com

FOOD FOR THOUGHT Image: Almond Production Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Asparagus Photo: Colourbox.com
FOOD FOR THOUGHT Image: Fish Farm Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Free-range Chickens Photo: Colourbox.com
FOOD FOR THOUGHT Image: Edible Insects Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Fresh Ingredients Photo: Colourbox.com
FOOD FOR THOUGHT Image: Tomatoes destroyed by disease Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Preserved (Canned) Foods Photo: Colourbox.com

FOOD FOR THOUGHT Image: Chinese Dumplings Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Mexican Food Photo: Colourbox.com
FOOD FOR THOUGHT Image: Italian Pizza Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Spanish Paella Photo: Colourbox.com
FOOD FOR THOUGHT Image: British Fish and Chips Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Swedish Meatballs Photo: Colourbox.com
FOOD FOR THOUGHT Image: Vegetarian Dish in Taiwan Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Japanese Sushi Photo: Colourbox.com

FOOD FOR THOUGHT Image: Fast Food Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Seasonal Berries Photo: Colourbox.com
FOOD FOR THOUGHT Image: Anorexia Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Overweight Photo: Colourbox.com
FOOD FOR THOUGHT Image: Grocery Supermarket Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Fruit on a Boat in Thailand Photo: Colourbox.com
FOOD FOR THOUGHT Image: Food Market in Peru Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Preparing Healthy Food Photo: Colourbox.com

FOOD FOR THOUGHT Image: Fresh Seafood Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Food and Celebration Photo: Colourbox.com
FOOD FOR THOUGHT Image: Transporting Carrots to the Factory Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Cheese Transportation in the Netherlands Photo: Colourbox.com
FOOD FOR THOUGHT Image: Ice Cream Factory Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Pigs being processed Photo: Colourbox.com
FOOD FOR THOUGHT Image: Pasta Factory Photo: Colourbox.com	*FOOD FOR THOUGHT* Image: Food Waste Photo: Colourbox.com

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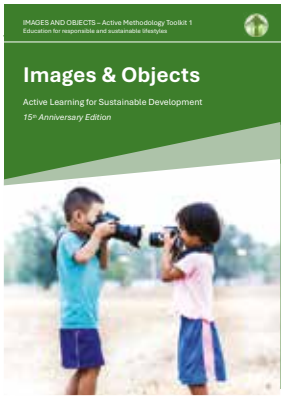
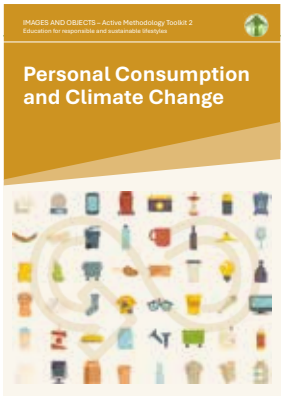
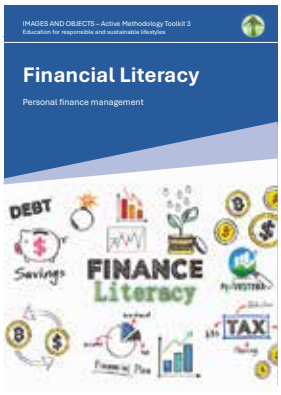
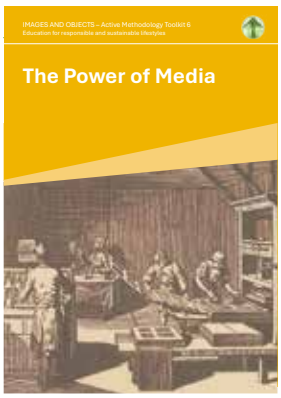
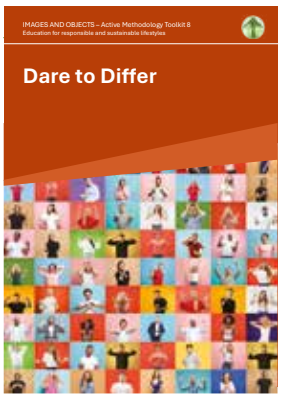
The *Images and Objects* Active Methodology Toolkit series

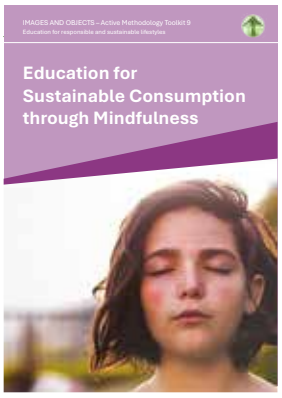






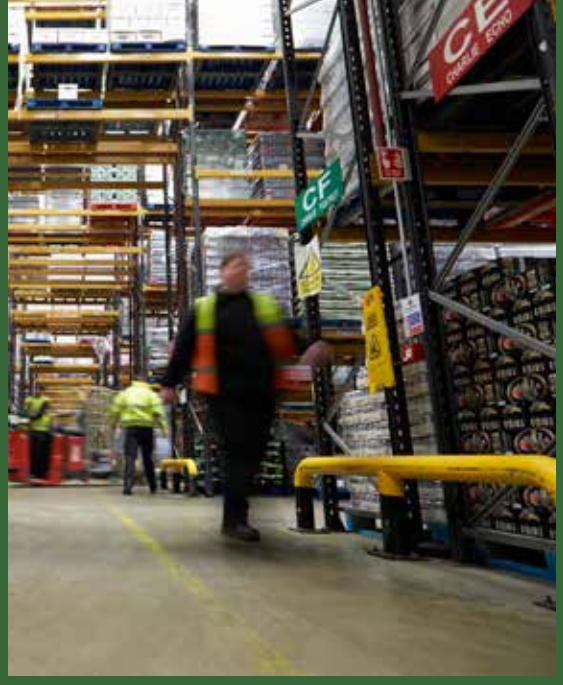






Download from:

https://www.inn.no/english/ccl/resources-for-teachers/ALM.html



"Hunger is not an issue of charity; it is an issue of justice."

Jacques Diouf