



Creating Effective Learning Environments for Sustainability

in Early Childhood Education



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Toolkit 14 in the Images and Objects – Active Methodology Toolkit series



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Structure of this toolkit

This toolkit is structured into five main sections.

1.

INTRODUCTION

The first section presents an introduction to the toolkit, and explains its structure, use, age and grade relevance, and learning objectives.

2.

BACKGROUND

The second section provides a background on the key concepts that frame the issues covered in this toolkit and how these may be addressed through ECE for sustainable development.

3.

AN EFFECTIVE LEARNING ENVIRONMENT

The third section addresses the team delivering ECE and explains how they can establish effective learning environments to foster sustainability values and take a whole-institution approach.

4.

TEACHING AND LEARNING FOR SUSTAINABILITY

The fourth section addresses ECE educators on how to teach ESD and create meaningful learning experiences for young learners. It introduces different pedagogies proven to be useful when teaching ESD in ECE. The pedagogical theories are closely connected to the suggested activities.

5.

RESOURCES

The fifth section contains resources to support the learning activities. A set of images, list of sustainability values, a food system and more are prepared.

How to use this toolkit

The toolkit targets educators in child-care centers, pre-schools, kindergartens and early grades of primary schools providing the background and strategies for establishing effective learning environments that foster sustainability values. It provides activities both for team development and for teaching ESD with young learners. The learning activities support the toolkit user on two levels:

Section 3: An effective learning environment for sustainability

will challenge you and your institution to reflect upon the sustainability values that are incorporated into your learning environment, and how these are promoted, communicated and acted upon. Activities are provided to stimulate such reflections and help your ECE team identify the most important values for your learning environment and how to integrate these values within the daily operations of your institution. Taking a whole-institutional approach is important to support the creation of an effective learning environment for ESD. The activities for the ECE team are set up in a way that provides them with an opportunity for personal and collective reflection. Through collaborative learning and exploration, the ECE team is stimulated to make adjustments to their learning environment to support the development of multiple competencies which see young learners as enablers for change and as active participants in democratic processes.

Section 4: Teaching and learning for sustainability

address the learners and how they can be engaged in directed play that supports learning about the three dimensions of sustainability (economic, social and environmental). It also provides ideas on how to promote the values identified and newly established within your learning environment among the learners, their parents and the local community in which your institution belongs. The activities with the learners are set up in a way that provides the educators with separate learning activities that can be used at different times and which can be adjusted to the level of the learners and desired depth of exploration.

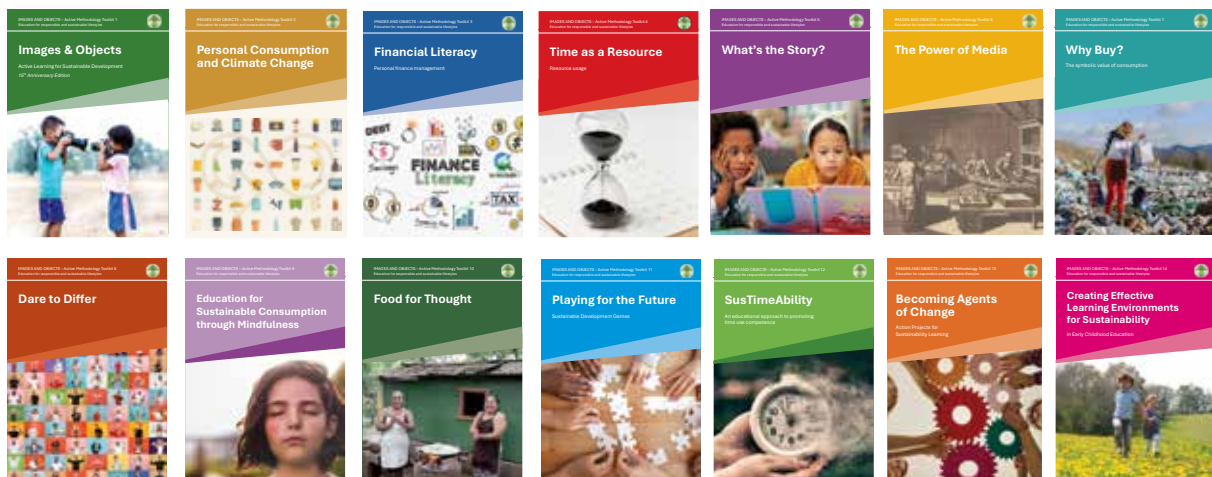
The toolkit provides a theoretical basis towards the objective of creating effective learning environments for tackling sustainability issues in ECE and supporting the acquisition of important competencies in order to empower educators and learners to actively take part in the change they want to see. Each activity has its own set of instructions and supporting materials. The objectives for each activity are linked to the presented theories in this toolkit.

As an educator, you may also choose to adapt and use the suggested activities with other themes or topics. Educators are encouraged to use the activities that suit their learners best, stimulate their interests and relate to local contexts. Where possible, the educator and/or learners are encouraged to add additional resources, materials, or images to provide greater connection and relevance to local contexts, challenges, and lifestyles.

Age and Grade Relevance

The content and activities of this toolkit are divided. The first part targets early childhood educators, and student educators or trainees working in child-care centers, pre-schools, kindergartens and early grades of primary schools. The second part of the toolkit contains activities for learners from age 4 to 8 explaining how they can be engaged in directed play that supports learning about sustainable development. This toolkit promotes a whole-institutional approach to ESD in ECE, and aims to engage both the educators and the learners themselves in efforts to work with sustainability in their learning environments.

Some early childhood educators may wish to adapt some of the activities and content for use with learners that are younger than 4 years. This can be done, though the learners' cognitive, physical, language and social stage of development must be considered. For activities suited for learners older than 8, we advise you to explore other toolkits from the [Active Learning Methodology Toolkit Series](#).



Learning Objectives

This toolkit focuses both on strengthening collaboration among early childhood educators to work as a team on ESD, and to engage young learners in playful opportunities to nurture and improve their competencies for learning about and contributing to sustainable development.

Learning Objectives for the ECE Team

The activities suggested for the ECE team promote critical thinking, systems thinking, collaboration, communication and aim to improve the strategic capacity of those working within the early years learning environment. Three main learning objectives are addressed by the toolkit towards an overall increase in the competencies of the ECE team for promoting and enabling sustainable development and ESD within the early childhood education institution.

- ✓ **Making personal connections with themes of sustainable development:** Stimulate critical thinking about one's own lifestyle choices and how these choices affect one's attitude as an educator towards learning for sustainability, sustainable practices and (body) language.
- ✓ **Measuring the presence of values using indicators:** These values-based indicators provide starting points and step-by-step guidance to help you assess values-based practices and resources that are important to your educational activities and help communicate these to the learners, their parents and the local community.
- ✓ **Identifying interconnections between values-based indicators and the dimensions of sustainable development:** Examine sustainable development through a holistic perspective and apply a systems-thinking approach towards identifying interconnections and leverage points for sustainability transformations within the learning setting, but also personally and within the young learners.



Learning Objectives for the learners

The activities suggested for the young learners promote critical thinking, collaboration, personal involvement and participation. Three main learning objectives are addressed by the toolkit towards an overall increase in competencies for sustainable development for the young learners.

- ✓ **Making personal connections with values identified within your learning environment:** Provide opportunities for young learners to explore the identified and newly established values within your institution, critically reflect upon their connection to sustainable development and discuss, plan and decide how as young learners they can promote them and live/implement them in their daily practice.
- ✓ **Collaborating for sustainable development:** Provide opportunities for young learners to learn from and with others, as well as to understand and respect each other's differences and diversity. Such opportunities will help develop the children's ability to show empathy and to learn how to deal with conflict.
- ✓ **Taking action for more sustainable practices within your environment:** Provide opportunities for young learners to engage in social actions and to reflect on one's own role in collaborative efforts. Young learners can be encouraged and guided to participate in democratic processes within their class, institution and local environment through active investigation and experience in implementation and evaluation.



History of Education for Sustainable Development

Since the late 1960s, there has been a growing concern about the negative effects of human activities on the environment. Building on earlier holistic and historical sciences (such as ecology, geology and climatology), the science of environmental sustainability began to take shape with an orientation towards understanding how small disturbances in one part of an ecosystem can multiply and generate cumulative effects across entire systems. This initial concern grew into an awareness of global nature of these environmental issues and the human role in these. Environmental Education (EE) was put forward as a means to raise awareness and develop the knowledge to address these global environmental issues. The Belgrade Charter from 1975 proposed a global framework for EE with the following objective:

“The aim of environmental education is to develop a world population that is aware of and concerned about the environment and its associated problems, and that has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively towards solutions to current problems and the prevention of new ones.”

The Report of the World Commission on Environment and Development: “Our Common Future” (United Nations, 1987) established that critical global environmental problems were primarily a result of the enormous poverty in the south and the unsustainable consumption and production patterns in the north. The report focused on the interaction between human development and the environment, leading to micro-level and macro-level debates and making sustainable development a serious political goal worldwide. The report also marked a shift from the ecocentric goals of EE to the more anthropocentric drive for development we see today with the broader concept of Education for Sustainable Development (ESD).



The 2030 Agenda for Sustainable Development was agreed by the United Nations member states in September 2015. The 2030 Agenda included a part on the Sustainable Development Goals (SDGs), placing education as one of several central means for achieving the SDGs. However, education in its traditional form cannot address the complex and multidimensional challenges the world is facing today or in our unforeseen future. Most current educational systems also do not place affective learning outcomes—the demonstration of values, attitudes, and beliefs—as primary goals alongside cognitive outcomes. Educational systems need to fundamentally shift away from a singular focus on instruction-based learning and factual knowledge transmission to also include meaningful, experiential, values-based and action-based learning.

To address the challenges our world faces today, and, in the future, it requires all of us to:

- ✓ **Develop attitudes and values, knowledge and skills that enable us to navigate our way efficiently, yet responsibly through a constantly changing world.**
- ✓ **See the world in context and understand that our actions locally affect the world regionally, nationally and globally.**
- ✓ **Gain competencies that may not have previously been focused on strongly in schools, such as systems thinking, critical thinking, collaborative learning and integrated problem solving.**
- ✓ **Take action, individually and collaboratively.**

ESD is not only about including topics of sustainable development in education. It is about having a holistic approach and the application of a range of existing, specialized pedagogies and learning approaches that aim to integrate and address a wide range of topics through the lens of sustainable development. This is in deep contrast to the traditional education model which focuses on fragmented knowledge that is transferred to the learner in a passive way. ESD emphasises active and student-centred learning, which in turn will challenge the teacher to become a facilitator and guide the students' own investigation, discovery and solution. ESD aims to facilitate a shift from transmissive to transformative learning and through its practice, empower agents of change.



Sustainable Development in Early Childhood Education

The political importance of ESD has led to curricula reforms globally with many countries choosing to include ESD from the upper levels in primary school to university level, often neglecting the earlier years. At the forefront of promoting sustainable development in early childhood education has been Ingrid Pramling Samuelsson. When she was elected World President for The World Organisation for Early Childhood Education (OMEP) in 2008, Ingrid was the lead actor to advocate and argue for change from peace education towards education for a sustainable development – a field that had not formally been on the agenda for early childhood.

Young learners are affected by global sustainability challenges today and in the unforeseen future. It is therefore imperative that young learners gain the values, attitudes, knowledge and skills to respond to these challenges in the best way possible. Research has shown that even very young children are capable of sophisticated thinking in relation to socio-environmental issues and that the earlier sustainability skills and values are strengthened, the greater the impact and influence can be throughout life (Siraj-Blatchford, Siraj-Blatchford, Smith & Samuelsson, 2010; Spiteri, 2018; Ernst, et al, 2021). According to UNESCO, lifelong learning is key to overcoming global challenges and to achieving the SDGs and that early childhood education is a valuable starting point to start learning about these issues (UNESCO, 2025).

The post-humanist perspective acknowledges that children deserve ample opportunities to engage with the natural world and to learn through play. There is, however, a fundamental disagreement among researchers whether adults should, if at all, interact with playing children to increase learning (Hakkarainen et al., 2013; Trawick-Smith & Dziurgot, 2011; Pramling et al., 2019). While other theorists and practitioners believe that biological age or assumed lack of knowledge, values, or skills are not reasons to shield children from identifying sustainability issues and work towards solutions. Nor can children's actions for sustainability be limited due to the perceived risks of complexity or hopelessness often associated with environmental issues (Ärlemalm-Hagsér & Davis, 2014). Consequently, it has been suggested that practitioners move away from more conventional learning theories and their subsequent pedagogies in exchange for embracing a more transformative approach to ECE for sustainability where children are viewed as active change agents. This transformative curriculum is seen as a holistic and co-created approach between children, educators, and parents or families featuring democratic processes, critical thinking, and engagement with the community (Bascopé, Perasso & Reiss, 2019). There are several pedagogical approaches to support transformative learning that include: nature play, values-based learning, project-based learning, amongst others (Yelland & Arvanitis, 2018).

Countries such as Norway, New Zealand and Australia have addressed sustainability in their learning frameworks. Norway's kindergarten framework was renewed in 2017 and emphasises a values-based approach that must be communicated, practiced and experienced by everyone involved in the kindergarten, thus taking a holistic, whole-institution approach. Values such as democracy, diversity and mutual respect, equality and self-worth, life skills, public health and sustainable development itself, are particularly emphasized. Other countries vary in the extent they have incorporated aspects of sustainability in their national learning frameworks, with some countries emphasising sustainability values and attitudes, other countries emphasize sustainability skills, and some countries only including it in a peripheral manner within their emphasis on early childhood development.

However, is it enough for countries to include sustainability aspects in their national learning frameworks for early childhood education, or do we need to revisit and revise traditional approaches to early childhood education? In other words, does early childhood education need a fundamental shift in pedagogical outlook and delivery?

Most early childhood learning frameworks have been heavily influenced by sociocultural, social constructivist, and Piagetian developmental learning approaches. These approaches see children through a lens limited by biological age and developmental stages. What we need instead are approaches that see children as enablers for change and as active participants in democratic processes. One such approach is the post-humanist approach, which has the potential to enable children to know and contribute to sustainability more than the approaches widely used today. This approach decenters humans from the social context, opening a viewpoint where other beings in the system are valued equally to humans. It emphasises the potential for human's protective and positive relationship with nature, rather than seeing humans oppositional to nature. For sustainability education to be successful at all levels of the educational system, the way content is taught as well as the environment in which it is taught, is just as crucial as the learning content itself.



Working with ESD values in early childhood education

The challenges we face in the world today are in part due to the disconnection from certain values and the lack of development of other values. Values form during childhood, influenced by the individual's needs, traits, temperament, experiences, culture and socialisation (Bardi & Goodwin, 2011). Values guide our thinking and behaviour, underpinning our attitudes, personalities, mindsets, and choices. Values drive intrinsic motivation, which is associated not only with long-term success, including achievement, quality education, and well-being, but also pro-environmental behaviour (Bamberg & Moser, 2007).

The value-belief-norm theory suggested by Stern and colleagues (1999) introduces the idea that values activate cognitions, which in turn produce personal norms connected to environmental behaviours. This notion has been supported with newer studies that link nature connectedness to pro-environmental values (Pereira & Forster, 2015). Affective factors and emotional motivation play distinct roles in explaining pro-environmental behaviours, not just cognitive factors.

Early childhood education provides an invaluable and foundational setting to start affective education, where learning is focused on developing values, beliefs, and attitudes that will greatly influence and benefit the learner throughout their life and help shape a process of life-long learning for ESD. As stated earlier, educational policies have changed and are changing by including more sustainability learning. However, there is still little empirical evidence of change regarding pedagogical approaches, especially in ECE (Buckler & Creech, 2014). Efforts have been made to increase research on sustainability learning in ECE, and to understand which pedagogical approaches best support this. Approaches such as nature connectedness, action research, playful learning, educare, inquiry-based learning, values-based learning and more have been proven to increase engagement in sustainability issues among young learners (Barrable, 2019; Larsson & Samuelsson, 2019; Ernst et al., 2021). Studies further show that early childhood educators struggle to implement strategies in a comprehensive and integrated way due to the complex nature of the interconnectedness of the three or four dimensions of sustainability (environmental, social, economic and cultural).

If we want to see (early childhood) education foster social, cultural and environmental well-being simultaneously with academic knowledge and competencies, we need to consider and embrace the important role that affective education plays in children's learning. In such manner, ESD not only teaches concrete facts about the environment, but creates an active, transformative process of learning that allows values to come to life, guiding and inspiring young learners in choosing to live more sustainably now and throughout their life.

Recent research has shown that supporting people to critically reflect on their own values and providing tools and indicators of how these values are expressed in their behaviour and lifestyles, can reinforce values-based education. By making the invisible visible, values can be encouraged and reinforced. Contradictions between incompatible values can also be made conscious and resolved (Harder & Burford, 2018). Learning environments such as kindergartens or elementary schools foster and support the development of different values, often including them in the mission statement of the institution. However, a mission statement may support, but does not guarantee, the institutions implementation of the stated values, nor does it assess if the mission has been achieved. For the values to be integrated in all aspects of the educational institution, they need to be actively communicated and be reflected in the daily activities of the institution. Further, both the educators and the learners within the institution need opportunities to strengthen capacities that contribute to the development of sustainability competencies. The educators need to have the confidence and self-efficacy to organise ESD activities for their young learners, enhancing their knowledge, willingness to act and actual action through active, experiential learning.

This toolkit proposes a values-based pedagogical approach to identify and reflect upon current and new sustainability values important to your institution and to collectively strategise which steps need to be taken to ensure they are actively communicated and transposed to the educational institution's culture, curriculum, campus and community. It is suggested that this reflection and mapping exercise is done within the pedagogical team delivering ECE before outcomes of these reflections are communicated and applied in praxis with the young learners. Suggested activities to support this reflection are provided in this section from page 15 to 21.



A whole-institution approach in early childhood education

Achieving sustainable development will require deep and far-reaching changes that fundamentally transform our society. The aim of education about and for sustainable development is to actively engage learners in collaboratively defining a sustainable future. Using learning methods and pedagogies aimed at enhancing the quality and relevance of educational practices, ESD fosters a sustainability mindset for lifelong learning. This in turn supports transformative learning, where learners play an active role towards creating a more sustainable future for their local, national and global community.

The early year caring and learning setting, and particularly ECE cannot be neglected or underestimated in the processes of achieving a sustainability mindset, both in the early childhood educators and in the learners being educated. Young learners have previously been seen as too young to understand the complexity of sustainability, but research has proven that they are more than capable of understanding challenges related to unsustainable lifestyles (Årlemalm-Hagsér & Davis, 2014; Larsson & Pramling Samuelsson, 2019; Huang, Pagano & Marengo, 2024). They are also the future generation that will need to find solutions to the unsustainable practices created by the generations before them, and can therefore not be excluded from the discussions, processes and decision-making that concerns them, their environment and their future.

An effective learning environment for sustainability is one that fosters understanding, engagement and action towards sustainable practices and adopts related policies which are applied with a holistic

3. AN EFFECTIVE LEARNING ENVIRONMENT FOR SUSTAINABILITY

approach. This means making your institution sustainable at all levels, including curriculum, learner participation, competence building, evaluation and assessment, institutional operations, organisational culture, leadership, management, and community relationships. This can be achieved in different ways; however, this toolkit proposes to initiate this work by working with the values that your institution holds and their connection to sustainability. By making these values visible through the day-to-day operations of your institution, you will foster a sustainability mindset, which is a way of thinking and being that arises from a broad understanding of ecosystems, social sensitivity, and introspective focus on personal values, which again can lead to one taking responsibility towards the environment and future generations. As an educator and role model, you play a significant role in promoting a sustainability mindset to the young learners around you. You cannot talk the talk, without walking the walk.

Once a sustainability mindset is fostered, one can start working on the other levels of your institution to achieve a whole-institution approach towards an effective learning environment for sustainability. This can be achieved by:

- Reflecting on the change processes necessary;
- Identifying which areas of an effective learning environment for sustainability your institution is already working strongly with, and which areas need to be strengthened and the role each educator and leader has in these processes;
- Specifying the concrete steps and actions that need to be taken to achieve these processes;
- Collaborating with each other as internal actors and also with external actors;
- Involving the learners in these various processes and providing opportunities for them to influence their educational journey and the transformative processes taking place at your institution.

Initiating transformative processes at your institution is not an easy task, and as an early childhood educator or leader, you will be challenged along the way. Taking a holistic approach to ESD is demanding and time-consuming (at least in the initial phases). However, by making small changes in the culture of your institution, it will be easier to also make changes in your curriculum, campus, and community (SustainAll, 2024). By embracing the above mentioned objectives, values, principles and practices, you are not just teaching sustainability – you are fostering a generation of critical thinkers and change agents dedicated to building a sustainable future. Thus, an effective learning environment for sustainability is dynamic and multifaceted, aiming to develop knowledgeable, skilled, and motivated individuals who can contribute to a sustainable future.



Activities that encourage team reflection for whole institutional approach to ESD

Activity A. Images & Objects

The goal of the activity is to broaden viewpoints and perspectives by encouraging participants to reflect upon an image or object that can stimulate thinking about sustainable development and one or more of its social, cultural, economic and environmental dimensions. Some argue that a fifth, ethical, dimension needs to be added if we are discussing the interlinkages between these dimensions. The images represent both positive and negative aspects of sustainable development.

The activity will allow the ECE team to reflect and discuss different perspectives collectively. As the team moves through the different steps in the activity, they will also practice their skills in democratic processes and decision making. The team can also take turns in the role as reporter and present the information shared during group discussions.

Materials needed

On page 39-47, you will find a collection of images that represent both positive and negative aspects of sustainable development. The images in this toolkit might help to get your collection started. Remove the images from the booklet, copy and cut as directed.

You can find more images in other toolkits in the series and at the CCL website: <https://www.inn.no/english/ccl/> or by scanning the QR-code:



Alternative images and objects suitable for this activity might include:

- ✓ Pictures, photographs, posters.
- ✓ Advertisements.
- ✓ Drawings, paintings.
- ✓ Objects, artefacts.
- ✓ Cards with keys words or statements.
- ✓ Newspaper cuttings.
- ✓ Blank cards and markers.

Time needed

This activity requires at least one hour. If more time is available this can be used to reflect longer during the group discussion phase.

How the activity works

1. To work effectively, this activity requires eight or more team members. It is particularly effective with larger groups, as it ensures the engagement of all members in the learning process.
2. A selection of images and/or objects are spread out in an area of a room where team members have the space to walk around and examine them. An open floor space is also suitable if tables are not available.
3. Each member is invited to select one image or object that has personal resonance and appeals to his or her understanding of sustainable development. Alternatively, members can, if they wish, choose one of the blank cards and write their own words or statements on it.
4. Members are invited to form pairs and share the image or object that they have chosen with each other. They should explain to each other their reasons for choosing it.

Note: You may add an additional step by indicating to the members that they should actively listen to the other person's presentation, because in the following step you can then have members present their partner's image and explanation, rather than their own.

5. Two pairs should join to make a group of four. Each image or object is presented to the members in the group and each member explains why they chose this image or object.
6. The group will now work together to prioritise just one image or object that will represent the group's understanding of sustainable development and that will be shared with everyone in the room under the following headings:
 - o An explanation of why the image or object was selected to represent the group.
 - o The process that took place to agree on one image or object.
 - o The value of the activity in facilitating a discussion related to sustainable development.
 - o Key discussion points or issues that arose in the group relating to sustainable development.

During Step 6 the facilitator or leader should circulate amongst the groups, checking that everyone is on task and listening to any interesting discussion points that can be highlighted during the next step.

7. General collective discussion phase:
 - o Each group selects a person who will speak on behalf of the four group members.
 - o The reporter from each group shares their image or object with the other groups and there is a general discussion led by the facilitator/leader.

It can be useful for the facilitator or leader to share any background information about the image or object during the general discussion phase. This may highlight how images and objects are open to different interpretations and how care must be taken to avoid generalisations, prejudiced or stereotypical comments.

Providing an immediate and wider context for the discussion evoked by the image or object can facilitate a better and broader understanding of the realities, complexities and challenges of sustainable development.

After the team has reflected on their personal connection to the images and/or objects and their knowledge of ESD, it is important to connect the items to personal and institutional values.

Activity B. Identifying and Mapping Values

Objectives

The goal of the activity is to connect images and objects to personal and institutional values with a sorting and mapping activity. By identifying and mapping values, the activity aims to stimulate reflection competencies by initially self-reflecting about one's personal values and how these influence your own perceptions, attitudes and behaviours which again are imitated and observed by young learners in your care. The activity further stimulates normative competency by strengthening your ability to identify and assess how differences in values influence other people's perceptions, attitudes and behaviours. Having a broader normative competence is important to assess and determine where values and behaviours are inconsistent with achieving low environmental impacts or where they encourage unsustainable practices.

Materials needed

- ✓ Sheets of paper
- ✓ Pens
- ✓ Post-it notes
- ✓ Venn Diagram Graphic organiser (Visit the Toolkit 10: Food for Thought, image bank for a printout of the graphic organiser by scanning the QR-code)
- ✓ National curriculum framework and/or standards for childcare centers, kindergarten or primary school



Time needed

This activity requires at least one hour. If more time is available this can be used to debate longer over the values that the team disagrees with.

How the activity works

The values that need to be identified for this activity need to be personal and/or institutional values related to the work of integrating sustainable development into your institution. In many countries, the national curriculum framework and/or standards for childcare centers, kindergarten or primary school includes values. It is therefore recommended to have this framework at hand when doing the activity.

1. Write as many values as the team identifies as important on post-it notes.
2. Once the values have been identified, the team will collectively map out which values are personal, institutional or overlapping, using a Venn diagram.

Each value will be defined by the group through reflection and discussion. For example, one value can be diversity. Is this a personal value, an institutional value or overlapping both?

3. Place the value in accordance with the Venn diagram:
 - A – Personal values
 - B – Institutional values
 - C – Overlapping values (placed in the middle)
4. Team members may also identify different values that they believe are incompatible with one another; these should be highlighted and discussed further.

Activity C. Prioritising values

Objectives

The goal of this activity is to deepen the work started in Activity B. Identifying and Mapping Values. The team will now sort out the values identified in the previous activity and rank them by priority. This work will be deepened further in Activity D Connecting values to practices and learning outcomes where the team will discuss and reflect upon the necessary steps needed to ensure that they are actively communicated and reflected in the educational institution's culture, curriculum, campus and community. The overall aim of Activity C and D is to deepen the integration of ESD in the whole institution. The activities will strengthen interpersonal competences such as collaboration, and communication skills and will strengthen every member's ability to integrate problem solving.

Materials needed

- ✓ Set of 10 stickers for each member participating in the activity
- ✓ An overview of the identified values from Activity B: Identifying and mapping values
- ✓ An overview of sustainability values (See list on [page 49](#) which is not an exhaustive list, but a starting point if needed)

Time needed

This activity requires at least one hour. If more time is available this can be used to debate longer over ranking of the values where the team disagrees.

How the activity works

The values sorted in the previous activity will now be prioritized with the support of the 10 & 4 ranking method. Members can use their stickers to allocate to the values that they believe are most important for their institution.

1. Each member is given a set of 10 stickers.
2. The group can now start to allocate stickers to the values they find most important for their institution, but no more than 4 stickers can be allocated per value.
3. Every member needs to use all of their 10 stickers.
4. If a value receives zero points, the team collectively discusses why this value has not received any points. After the discussion, it can be decided to either discard the value or strengthen it for further integration in the learning environment.



Activity D. Connecting values to practices and learning outcomes

Objectives

Now that the values have been prioritised as a team, the next steps will be to collectively reflect and discuss which practices already strengthen the expression of the value in question. This initial reflection is followed by identifying practices and activities that can be introduced to strengthen the weaker values and includes discussing actions or steps needed to ensure that values are communicated and reflected in the daily activities of the learning institution, promoting a sustainability mindset. To help this collective mapping, it is recommended to use the tabular Organiser Matrix. This compare and contrast matrix is a graphic organiser that allows your team to see similarities and differences of multiple concepts in one area.

Once the team has worked through the list of identified values, you can connect the values and identified practices to the learning outcomes of your national curriculum, or other national standards or related documents, or your institutional vision or mission statement. To support this process, it is recommended to print copies of any documents to be used in addition to the Compare and contrast matrix prepared in the first steps of this activity. (Note: The national curriculum framework for early childcare centers, kindergartens or primary schools will vary from country to country, but most will include areas or subjects and a values-based foundation that influences their pedagogical work) .

To summarise the activity, the team can organise and structure all the collected information in a comprehensible form by using the Fishbone graphic organiser. During this process, it is also recommended that the overview of areas of an effective learning environment for sustainability is at hand to check that the identified practices and activities fit into the different areas.

Materials needed

- ✓ Matrix and Fishbone graphic organiser (Visit the Toolkit 10: Food for Thought, image - annex a printout of the graphic organiser by scanning the QR-code)
- ✓ Overview of areas of an effective learning environment for sustainability (page 50).
- ✓ Overview of prioritised values from Activity C: Prioritising values.
- ✓ A2 or A3 sheets of paper.
- ✓ National curriculum framework for early childcare centers, kindergarten, primary school, or other available national standards or related documents, or the institutional mission or vision statement.
- ✓ Post-it notes or highlighters



Time needed

This activity requires at least 4 hours, preferably a full day. The longer duration is required to solidly and effectively initiate the work for a whole-institution approach. The ideas and actions initiated through this activity, will need to be focused on continuously and assessed, evaluated and, if necessary, revised intermittently throughout the year.

How the activity works

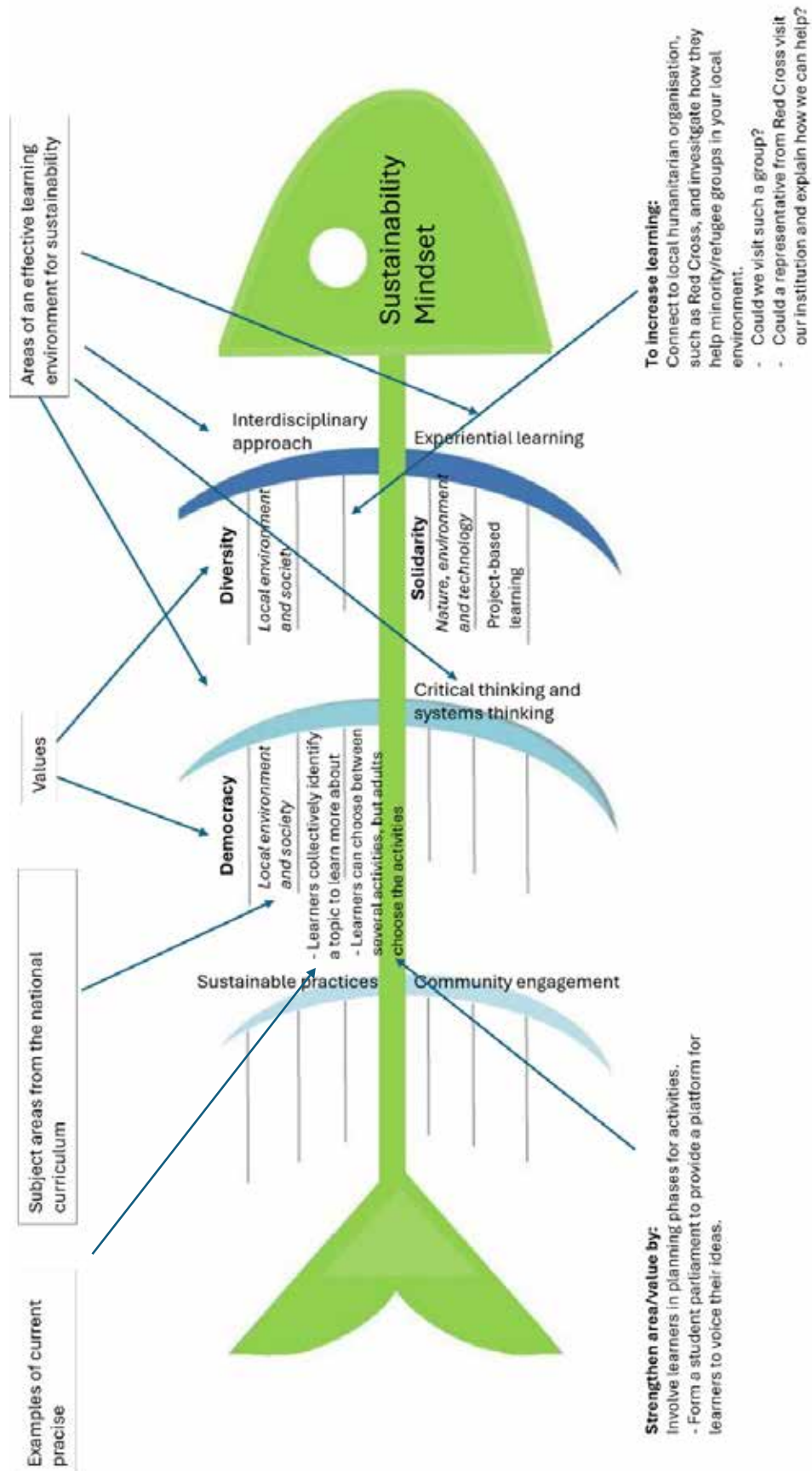
1. The team prints out the Matrix organiser on A3 paper. Someone writes the values your institution has identified in Activity C at the top of the Matrix. Collectively the team now discusses and reflects upon practices and activities that are already being done for each value. The identified practices and activities are written in individual boxes underneath each value (depending on the number of values, the size and number of boxes used in the matrix can be adjusted).
2. The weaker values will show empty boxes and the team will need to identify practices and activities that can be introduced to strengthen these values and write these in the individual boxes, as was done with the stronger values. To differentiate between the weak and strong values, one can choose to use different colored pens or highlighters (green=strong; red=weak; blue=new suggestions).

The matrix should look something similar to the example below:

Diversity	Democracy	Solidarity
We encourage learners to talk about their cultural, religious and language differences. Local environment and society (Subject areas)	Our learners are free to choose between several activities daily, but the adults decide the activities.	Our learners work on action projects collectively.
We cook food based on the cultural backgrounds of the learners in our institution.	Our learners collectively identify a topic in their local environment they would like to learn more about. Local environment and society (Subject areas)	We've created a box of feelings where learners anonymously can write how they feel and reflect collectively.
We explore the different cultures and religions represented in our institution through books and songs.	Starting a junior parlement in our school will provide our learners with a voice to the leadership.	Our learners have common responsibilities within our institution. For example, one group is responsible for reducing food waste. They weekly weigh the food waste and collectively identify practices that can reduce the waste. Responsibilities are rotated between groups to provide equal opportunities to all learners.

3. The team is provided with the national curriculum framework for early childcare centers, kindergartens, primary schools or other pertinent national or institutional documents.
4. Collectively, the members now reflect and discuss if the prioritised values together with their identified practices and activities connect to the subject areas and learning expectations described in the national curriculum, or to national standards, or other institutional vision or mission statements.
5. The subject areas are written on post-it notes, or directly into the boxes, wherever they match. For example, in the Norwegian curriculum one subject area focuses on “Local environment and society”. Through this subject area the learning expectations are connected to participation in local environment, learning about local history and traditions, learning about different lifestyles and family structures, etc. The learning outcomes can be connected to the values diversity and democracy.
6. The team is now handed an A3 sheet with the graphic Fishbone glued in the middle. Collectively, the team now tries to organise and structure the collected information from the previous steps in a comprehensible form and link the organised results to different areas of an effective learning environment for sustainability.
7. The fish's head represents the overall aim of the activity, which is to promote a sustainability mindset. Each large bone can represent an area of an effective learning environment for sustainability (print from page 52). The small bones can be used to write the identified values, subject areas and learning outcomes or standards or vision/mission statements, and concrete steps and activities that are needed to strengthen this area.
8. Collectively, the team should also consider possible foreseen obstacles that could hinder their institution from taking these necessary steps. Foreseen obstacles can be written around the fishbone, and lines can be drawn to the areas they are connected to.
9. Now the team can discuss how these obstacles can be overcome, and suggestions are written next to the obstacle. If resources are needed to overcome the obstacle, these should also be identified.
10. The team further discusses which local actors in their community can be identified to support their work and provide more educational opportunities for their learners outside of the physical borders of their institution. These suggestions can also be written around the fishbone and lines drawn to the areas of an effective learning environment for sustainability.

Based on the 10 steps above, the fishbone could look something like this:



Playing and learning for sustainable development in ECE

The following section takes a brief look at some play-based learning theories. It also explores the relationship between play and learning and which pedagogical approaches may support children's play and learning for sustainability.

Play-based learning theories

Play has been studied by scholars from different fields for many years. Theories developed in the last century that have tried to define play are:

- ✓ **Psychoanalytical theory** which supports the idea that play is important to a child's development and that it has "a cathartic effect", meaning it allows children to rid themselves of negative feelings associated with traumatic events.
- ✓ **Metacommunicative theory** which explains that through play children learn to operate simultaneously at two levels; the make-believe meanings of objects and actions, and their own identities, the other players' real identities and the real-life meanings of objects and actions used in the play (Mellou 1994 in Pramling et al., 2019).
- ✓ **Theories concerned with play and cognitive development**, which build on the work of Piaget. Piaget's theory of cognitive development proposes 4 stages: the *sensorimotor stage* (birth to 2 years); the *preoperational stage* (ages 2 to 7); the *concrete operational stage* (ages 7 to 11) and the *formal operational stage* (ages 12 and up). According to Piaget, children engage in types of play that reflect their level of cognitive development: functional play, constructive play, symbolic/fantasy play, and games with rules.

Whilst some theories focused on trying to define play, other theories have been more concerned with the *relationship* between play and learning. There is still a lot of disagreement amongst researchers how play should be defined, if at all, and what are the commonalities that underly all play (Pramling et al., 2019). This toolkit will not attempt to define play, as this is not the focus of this toolkit. Instead, the toolkit will further explore which pedagogical approaches support play and learning for sustainable development.



Pedagogies for ESD in ECE

Literature shows that sustainability-related education uses a wide range of existing pedagogical theories and approaches that are not necessarily unique to sustainability education (Pramling et al., 2019; Smedsrud et al., 2024; Ferrero, Vadillo & Leon, 2021; Samuelsson & Park, 2017). The unique factor in ESD is the comprehensive approach and application of these various theories and pedagogies, rather than mere assimilation of the sustainability content itself. Together with the awareness that education has often neglected to include the *heart* in all learning, there is a growing interest in adopting affective learning approaches with young learners, connecting the *heart, head and hands* (or the socio-emotional, cognitive and behavioural dimensions of learning).

Nature play

Nature play takes place outdoors and in natural settings. It is unstructured or loosely structured and involves interactions with nature (not just being in nature). Nature play is one approach that has been put forward to provide a foundation for children to develop attitudes and values for pro-environmental behaviour later in life. It allows children to develop knowledge about the environment, a positive environmental attitude, and a connection to nature. It is posited that when children are provided with positive experiences to explore and play in nature, these experiences should be enough to foster such attitudes and values. Nature play has also proven to provide benefits to children's physical, academic, social and emotional learning (Ernst et al., 2021 and Smedsrud et al., 2023). When children have access to a diverse natural environment, they can engage in different kinds of play that are likely to influence their socio-emotional, cognitive and behavioural capacities.

Some researchers, however, believe that playing in nature does not provide opportunities for children to act as change agents and thereby also do not honor children's rights and responsibilities. They are suggesting a transformative shift where young children are recognised as thinkers and problem-solvers, who need to be exposed to opportunities to engage in sustainability issues in authentic and meaningful ways (Ernst et al., 2021; Smedsrud et al., 2023). Yet, if children are provided with opportunities to engage in sustainability learning, they will need the support of their early childhood educators, who have a strong appreciation of the educational potential in natural environments. They need to be reflective and responsive when implementing active learning for sustainability in this unique learning environment, adopting scaffolding to cater for each child's needs through incremental and targeted support.

Despite the criticism towards nature play, it also has the potential to facilitate and ameliorate education for sustainability by providing opportunities to explore different behaviours and encourage stewardship, reflective thinking and curiosity. These opportunities can strengthen learners knowledge and critical thinking about the environment and its connection to (un)sustainable practices, and to foster appropriate attitudes, values and skills with respect to nature protection. In relation to sustainability learning, nature play strengthens learners abilities to become responsible and global citizens, developing a strong sense of place and awareness of their impact and possible actions now and in the future (Ernst et al., 2021; Smedsrud et al., 2023). Nature play contributes to environmental learning, however this connection could not be made without the assistance of reflective and responsive educators. Educators help children to connect their knowledge of nature to concepts of sustainability.

Systematic Child Talks

One of the learning objectives for ESD is developing skills for effective *collaboration and communication* across different cultures and disciplines (Centre for Collaborative Learning for Sustainable Development (CCL), 2022). Developing skills for effective communication means you are able to express yourself in an intelligible and succinct way, to present one's ideas and arguments in a logical and convincing manner, and to adapt one's communication to meet other's needs and levels of understanding. Good communication skills also require using and practicing communication through active listening and joining in dynamic discussions (Wiek et al., 2015).

Early childhood education can provide important opportunities for children to practice their communication skills, especially in relation to democratic processes. This strengthens their ability to engage in democratic participation and social action. The ways in which early childhood educators think, act, and communicate with children will influence their learning, play, and development. Methods used in ECE for sustainable development include children-teacher communication, child talks and promoting children's talking (Weldemariam et al., 2022).

Systematic child talks is an active method to communicate with young children, with the aim of identifying, understanding, appreciating and clarifying children's perspectives. It requires educators to be reflective and responsive in their communication and interactions with young learners. Talking with young children in meaningful ways is an important attribute of early childhood educators and can be an important method for promoting sustainability learning, as well as inviting children to share their ideas, knowledge and experiences in relation to sustainability issues. Systematic child talks can be used to communicate with one child at a time around recent themes, topics or projects linked to sustainability to acknowledge and help enhance children's understanding of the topic and their potential role in improving the situation.

Several approaches can be taken during structured systematic talks:

1. **Joint creation of meaning:** In this approach children are met in an open, interactive atmosphere, and the educator and learner are collaborative partners in the dialogue. This provides an opportunity for the child to come up with new ideas, solutions and behaviours, and ensures the child's right to involvement, whilst empowering them with the capacity to participate in daily life decisions and actions.
2. **Question and answer, focusing on remembering facts:** In this educator-centred approach, the educator asks questions, and the child answers. The underlying idea is for the teacher to check whether the child can repeat facts and the intended knowledge. This approach underpins the idea that education and learning are about passing on facts from the teacher to the child(ren).
3. **Following the children:** In this approach, the child talks, and the educator listens, similar to *Joint creation of meaning*. The difference, though, is how the educator balances the interventions and suggestions made by the child to the educators-initiated focus of the child talk. This approach does not guarantee that education is directed towards a common focus, or a shared meaning making around sustainability.

Quality in ECE is very much dependent on the early childhood educators, their views on the child as a learner, their approach to education, and how they look at knowledge and learning. Only in the Joint creation of meaning was intersubjectivity achieved, meaning a shared understanding that emerges from interpersonal interactions and which is a characteristic of high quality ECE.

Values-based learning

ESD aims to not only provide a scientific understanding of the environment, but also to motivate changes in behaviour, through the internalisation of sustainability values and establishment of norms around sustainability practices. Values promoted by the prevailing culture are embraced from an early age during the socialisation process and serve as guiding principles in people's lives (Schwartz & Bardi, 2001). An individual will hold numerous values, although the degree of importance these values have may vary according to personal experiences, his/her social structure, culture and the motivational goal the value expresses. The motivational goal is dependent on the importance of the value to the individual and the dominant culture of the country they live in. Education with a strong focus on values can help to remove barriers of implementation across all the areas of action for sustainability, and it can address the knowledge-action gap (Dahl, 2016). Values-based learning can strengthen learners abilities to identify and assess how differences in values, principles and goals of individuals lead to differences in their perceptions, attitudes, and behaviours. Furthermore, values-based learning strengthens the ability to critically reflect on how different value or moral belief systems shape differences in perspectives and social conventions, and to examine one's own biases and values critically. These are important capacities for the development of action competence, an important learning objective for ESD (CCL, 2022).



Key values related to sustainability are stewardship, conservation, resilience, inclusion, prosperity, heritage, diversity, solidarity, cooperation, accountability, honesty and trustworthiness, integrity and altruism, respect for nature and the planet, although there are many more. These sustainability values are enforced through the Sustainable Development Goals (SDGs), reflecting principles of justice and equity. Values related to sustainability promote a certain type of pedagogy in which the child should be allowed to take initiative, think, and reflect. This will encourage children to create their own meaning, as knowledge becomes integrated with their emotions, and as a result children own that knowledge. To achieve this, early childhood educators need to direct children's attention towards various sustainability questions using play-based activities.

Values cannot be gained by telling or describing, they should be experienced directly and internalised. Opportunities arise during the normal routines of early childhood institutions, such as mealtimes, cleaning time, and play time for exploring and nurturing sustainability values. During these real-world experiences, children share a meaningful social context whereby values are transferred. Early childhood educators are crucial in making values visible to the learners by being positive role-models and explaining reasons for their actions in appropriate child-friendly language awareness. Thus, an awareness of their own values is very important. The educators are also crucial in helping the learner synchronise different sets of values, when there is a variance between family and the early childhood institution (Baig & Funer, 2022).

Project-based learning

During project-based learning, learners are actively exploring real-world problems and challenges in collaborating groups, over an extended time-period. This interdisciplinary method engages learners in making real-world connections through exploration and implementation of a solution which orients the learners towards becoming change agents in their local communities. The approach leads to independent, self-regulated learners, who actively engage with the learning materials or process, developing their problem-solving skills, critical thinking skills and communication skills (Kalsoom and Khanam, 2017).

The method has been applied from kindergarten to higher educational levels, although some argue against the effectiveness of the method at all levels of the educational system. For example, advanced self-regulation skills, prior knowledge, or group work skills (for example, the abilities needed to discuss ideas, consider alternatives, or compare different points of view) are not usually skills kindergarten children or primary students possess (Ferrero, Vadillo & León, 2021). However, there are other benefits to project-based learning that can be very beneficial to young learners, such as improving social skills. Social skills, including communication, emotional development, problem solving, cooperation, empathy, collaboration, democratic participation, decision making and adaptation to present norms, have been observed to improve with project-based learning. These findings indicate that project-based learning can support learners in child-care centers, pre-schools, kindergartens and primary schools to engage with one another in a more meaningful manner and much in line with sustainability learning, where social skills are valued higher than the attainment of factual knowledge (Farida & Rasyid, 2019; Pettersvold, 2012).

To sum up this section on pedagogies for ESD in ECE, it is important to note that the pedagogies described here are examples of existing pedagogies that have also proven to be effective in sustainability education because they take a holistic approach to learning, are hands-on and provide young learners opportunities to think, evaluate, communicate and collaborate together. Different pedagogies will support different practices and also provide different learning opportunities. As an educator you are free to use these pedagogies in combination or separately, depending on the learning outcomes you seek for your young learners.



Activity 1. Scavenger hunts to explore the local environment.

Objectives

The goal of the activity is to enhance and encourage children's observation and exploration skills, regardless of the eco-system of their local environment. Skills in communication and collaboration will be strengthened as the learners explore collectively. The activity will allow young learners to reflect on their findings as these will be a combination of natural and man-made items. The man-made items are of particular interest as these will provide opportunities for the early childhood educators to engage in reflection and conversation together with the young learners about sustainability issues. This activity will strengthen learning within the economic, social and environmental sustainability dimensions.

Materials needed:

- On pages 51-55 you will find pictures of items which the children may find during their field trip categorized as follows:
 - natural items, such as leaves, rocks, and flowers.
 - man-made items, such as food wrappings, glass and plastic bottles, plastic bags, and metal objects.
 - no-touch items (because they might harm the young learner), such as broken items, sharp objects, cigarette butts, needles, spoons or other drug paraphernalia.
- Small bags or baskets to collect the items in.

Time needed

This activity requires one hour. If more time is available this can be used to stay on-site and explore the local environment further, or to visit another particular area near the learning institution with a contrasting environment or eco-system.

How the activity works:

1. The activity can be done with a group of young learners, such as one kindergarten department or one class in a primary school.
2. Each group or child receives a copy of the lists with items (laminated) and these are discussed before heading out. Educators should find out the following:
 - Do all the young learners recognise the items on the lists?
 - Are there any questions in relation to the no-touch items? At this point it is very important to explain to the young learners why the no-touch items are off limits. The young learners also need to be warned that if they find a no-touch item, they must immediately inform an educator who is with them on the walk, without touching the item.
3. The young learners are then provided with small bags or baskets and get dressed to go out.
4. Once they arrive at the exploration site, the young learners can hunt for the items on their lists.
5. When the young learners have found most or all of the items on their lists, they return to their department or classroom to inspect the items.
6. The items can be laid out on a table or on the floor for further inspection.
7. The early childhood educator will now help connect aspects of sustainability into the conversation to encourage a collective reflection around the items found.

Examples of questions:

- What have we found?
- Shall we try to categorise the items?
- Why is this item found in our local environment?
- How did this item find its way into the local environment?
- What is the purpose of this item?
- Can it be dangerous? For whom?
- What can we do to avoid such items being thrown away in our local environment in the future?
- How can we protect the plants, insects and animals that live in our local environment?

Alternative activities to engage in your local environment:

Outdoor Art and Crafts: Use natural materials like leaves, sticks, and stones for outdoor art and crafts projects. Children can create nature collages, leaf rubbings, or build sculptures from found objects.

Sensory Play Areas: Create sensory play areas with sand, water, mud, and other natural elements, such as wild berries and flowers. Sensory play supports tactile exploration and helps develop fine motor skills.

Outdoor Storytime: Hold storytime sessions outdoors to combine literacy with nature. Choose books about nature, animals, and the environment to inspire children's curiosity and learning.

Animal and Plant Observation: Encourage children to observe and document the animals, insects and plants they see in their outdoor environment. Provide magnifying glasses, notebooks, and drawing materials for them to record their findings.



Foto: Lisbeth Espeseth Lund



Activity 2. Diversity in everyday objects

Objectives

The goal of the activity is to generate a discussion and reflection on different ways that people meet their basic needs and how this affects their quality of life. The diversity and differences we find around the world in relation to single everyday objects (e.g. toilet, cooking stove, drinkable water source) will help the learners to identify which basic need is met and reflect on why there are such large variations in the world of the same object. The activity will strengthen learners understanding of diversity and can bring about deeper discussions on equality, fairness and the distribution of goods and services. The early childhood educator is critical in connecting these perspectives within the activity by creating a space for open reflection where every learner is given the opportunity to contribute. This activity will strengthen learning within the economic, cultural and social sustainability dimensions.

Materials needed:

- Please scan the QR-code to download Toolkit 1: Images and Object. On [pages 53-55](#) you will find strips of images depicting everyday objects with examples showing the diversity of these objects from around the world. Make enough copies of the strips of images to distribute a copy to each group who will work with the material.



Time needed

This activity requires at least one hour. If more time is available this can be used to build on the previous activity and deepen knowledge on what was presented, or encourage reflections later on with Activity 3: Collective investigation and Activity 4: *The burying project*.

How the activity works:

1. Learners in primary school can be divided into groups of 4-5 learners, while kindergarten learners can discuss as a whole group with the early childhood educator facilitating the discussion.
2. Working in a smaller or one large group, the learners should examine a collection of images that show a variety of examples of the same object from around the world.
3. The group then talks about these images and reflects on what basic need is being met by the object, and what are the differences in how this need is met. In kindergarten the educator should lead this discussion by asking questions and by responding to whatever the learners focus on, while primary school educators can allow the learners to discuss in smaller groups first.
4. Once the smaller groups from primary education have completed discussing a specific object, they can either exchange the images of that object with another group and begin discussing a new object, or each group can report back on their object and a discussion in plenum follows. Kindergarten learners can report and discuss as a whole group.

Questions for the early childhood educator to consider are:

1. What is this object used for?
2. Would you use some of these objects more than others? Why?
3. What if you only had access to the object that you don't like so much, how would this impact your (quality of) life?
4. Why do you think there are differences in the world on the same item?
5. Is it fair that people around the world experience such differences in their access to this object?

Activity 3. Collective investigation

Objectives

The aim of this activity is to promote inquiry and observation skills by conducting simple investigations outdoors, such as observing the weather, studying insects, exploring plant growth, or rediscussing the trash collected in Activity 1: Scavenger hunt. The theme to be investigated can be a chosen theme your learning institution has already been working on with the learners, such as “The life of bees” or “Where do eggs come from?” or can be identified through a democratic decision-making process where the learners can propose and vote on new investigations. Is there anything they would like to know more about? (Maybe “What happens to my poop when I flush the toilet?”). When learners are given the opportunity to influence their own learning processes, they experience learning to be more relevant, and they will be more engaged in the material studied. The activity will strengthen learners abilities to collaboratively generate knowledge and promote critical reflection and communication. This activity will strengthen learning within the economic, cultural and social sustainability dimensions.

Materials needed:

- Depending on the theme that is being studied, the learners will need something to investigate and/or observe with, such as magnifying glasses, cameras, drawing paper and pens, books to provide knowledge and images on what they are studying, containers to collect with, etc.
- Back at their learning institution, the learners need material to provide more in-depth knowledge of what is being studied. These can be talks together with the early childhood educator, books, videos, searches on the computer, or even a guest speaker. Alternatively, they can also visit a local stakeholder, such as a waste disposal facility, to learn more about their processes.

Time needed

This activity requires at least 2-3 hours but can also last weeks or months if extended to a project providing an opportunity for deeper investigation into the subject matter. Questions will arise during the investigation session/s. These can be written down by the educator and different materials can be used to try and answer the questions. The learners should be provided with time to reflect upon different solutions. If the learners have investigated a challenge in their local environment, they can be asked to reflect upon and draw different solutions and for longer projects even try to implement solutions.

How the activity works:

1. Together with the learners, a theme to investigate is decided. The educator asks: What do you want to learn more about? The questions the learners produce can be written down before heading out.
2. Together with the learners, a list of items needed to conduct their investigation is created.
3. Then it is time to go out and undertake real-world investigations. For example, if you are studying insects, the group could count the number of insects in a given area with the use of magnifying glasses and take photos of or draw the insects they observe.
4. Back at their learning institution, learners together with their educator, can use different materials to investigate further and answer questions that arose during the investigation period. For example, the group studying insects can try and name and categorise the insects they observed and took photos of, learn more about the purpose of the different insects through books, videos or inviting an expert on insects.
5. Depending on the theme being studied, learners can propose changes to improve the situation. Where possible these changes can be tried and tested. What can the group do to improve the living environment of the insects observed during their investigation?

Activity 4. The burying project

Objectives

In this activity, the learners will go out in the environment surrounding their learning institution to collect different items of trash that they find. Alternatively, the learners can each bring an item of trash from home or use the trash collected in Activity 1 The scavenger hunt. The aim of this activity is to encourage participation from the learners involved, and to promote solidarity by strengthening the relationship between the learners. Engaging in this activity will strengthen the learners' collaboration and communication skills. It will also provide opportunities for consequential thinking through dialogue and reflection at the end of the activity. This activity will strengthen learning within the economic, social and environmental sustainability dimensions.

Materials needed:

- Something to collect their trash in, such as a basket, bucket or bag.
- A list of man-made items and no-touch items (pages 53-55)
- An area to bury the trash into soil. This can either be in a greenhouse (if your institution has one), in the (school) garden, in individual pots, in recycled milk and juice cartons, or even a fishtank inside your institution.
- Soil (if the trash is to be buried in a greenhouse or inside pots, reused cartons or fishtank)
- Trash such as plastic bags, bottles, cans, natural items such as leaves, twigs and/or other plant matter¹, items of clothing, glass, old newspapers/magazines, milk cartons, etc.
- Labels on a stick to place in the soil and identify the trash (for outside use, the note can be laminated)

Time needed

This activity requires two hours, but is split over two sessions. This means that Steps 1-4 take one hour, and Step 5 takes one hour at a later date.

How the activity works:

1. The learners are informed of the activity ahead of time. If the learners are bringing an item of trash from home, a letter informing the parents or guardians will also need to be sent out prior, explaining the activity and learning objectives.
2. If the learners are going to find the trash in their local environment, they can get ready to go out with their basket. If the learners bring their own trash, the learners can contribute by either preparing the soil in the pots or containers the trash will be buried in, identifying an outdoor area of their institution where they want to bury the trash or help get the greenhouse ready for planting.
3. Once the learners have collected their trash, they bring it back to their institution and lay the items on the ground to get an overview of what they have collected. Or if trash was brought from home, children also display their items. During this step, the educator can ask questions to encourage conversation and curiosity about the items.

Examples of questions:

- What types of trash do we have here? Could we group them?
- How many items of trash can we count in each group?
- What material is the trash made of?

¹ It is important to not bury food waste as this can cause hazardous situations. Instead, we propose plant material that can be found around your educational institutions such as leaves, weeds, twigs and flowers.

- What was the trash used for before it became trash?
 - What happens to the trash when we throw it in the bin? And what happens to the trash when we throw it in nature or on the street?
 - When we now go and bury the trash, what do you think will happen to it? (Different trash items can be mentioned here.)
 - Will there be differences when we bury plastic or natural items such as leaves, or not?
4. The learners help to bury the trash and label each item.
 5. After a particular time has passed (one week, month, several months), the learners, together with the educators, will dig up the trash they have buried to see what has happened to it. During this step, the educator can support the learners' questions and reflections but can also encourage more in-depth learning by asking more questions. The educator can also write down the questions from the learners for further investigation.

Examples of questions:

- Why is this trash unchanged?
- Why have the natural items started to decay, but the plastic or glass items not?
- What would happen to the trash if we left it here? (e.g. Animals could eat it, it would turn into microplastic, it can poison the surrounding soil and water)
- What happens to our trash at a sorting facility?
- Shall we dig up all the trash, sort it and dispose of it correctly?
- Would you like to know more about what happens with our trash?
- What would you like to know more about?
- How or where do you think we can learn more about what happens to our trash?



Activity 5. Bringing values to life

Objectives

The aim of this activity is to bring values to life by letting young learners actively work with the value of equality and reflect upon the reward they gain from taking part in the activity. By supporting learners to critically reflect on equality and what it means to them in their everyday lives and others around them, they are strengthening their ability to self-question, think critically and gain a deeper understanding of democracy. The example in this activity is about equality; however you are free to change the focus to another value. This activity will strengthen learning within the economic and social sustainability dimensions.

Materials needed:

- An open space, either a room or outside space.
- Two large, see through containers of equal sizes. These can be glass or plastic.
- A large number of two separate (coloured) items. These can be balls (pink and blue), or natural items (e.g. pinecones and sticks or leaves), or even toys (e.g. small cars and trains, plastic jewelry).
- A reward. This can be a glass of cut-up pieces of fruit, fruit smoothie or other healthy foods you usually celebrate with.

Time needed

This activity requires 30 minutes to an hour.

How the activity works:

1. Learners together with their educators prepare the room or outdoor space by placing the two equal containers on the floor and spreading the items to collect around the containers.
2. The learners are divided into pairs, each pair containing a girl and a boy. If you have uneven numbers of boys and girls in your group, we suggest dividing the group in two and stating that one group represents boys and the other group represents girls.
3. Pairs are invited, one at a time, into the room or outdoor area. They are asked to separate the items into the two separate containers. If you are using balls, all pink balls should be collected in one container and all blue balls in the other. The learners decide which approach they take to gather the items.
4. Once all items have been collected, the learners are informed that they will receive their reward. The learners close their eyes and are given their rewards. The boys get a glass that will contain less fruit, or smoothie than the girls.
5. The learners open their eyes and see their reward. At some point they will come to the realisation that the girls have received more and question why. If they do not react, the educator can probe by questioning if they have received equal amounts.
6. At this point the educators can explain that the boys received less, because they are boys. The learners will hopefully react by saying that this is not fair, and this is the point where reflection can take place on equality among genders and/or related fairness concepts as mentioned by the learners themselves.
7. A final collective reflection takes place after all the learners in the group have discussed the activity.

Examples of reflection questions for collective reflection:

- Was it fair that the boys received less than you, just because he is a boy? No, why not?
- How would you feel if you often received less than your friend?
- How do you think the person receiving less feels?
- How does it make you feel when people receive less than you?
- What do you know about equality and inequality?
- Do you know of any other areas where people are not treated equally?
- How would you react if you saw someone not being treated equally?

Activity 6. What is a Food System?

Objectives

Food is the unifying language that cuts across age, income and culture and is a great starting point for teaching about sustainability. Eating together, as many learning institutions do, is also a social arena where learners can practice their communication skills and learn about diversity.

The aim of the activity is to introduce systems thinking to young learners; in particular a food system. When learners start to recognise and understand connections and interconnections, they will strengthen their capacity to identify intervention points and levers of change.

For this activity, the educator should pick a common food item that your learners enjoy eating and which is made up of a few different ingredients. The example given below is based on tomato soup (often bought in a dried or dehydrated package).

To make this activity as fun and realistic as possible, we encourage the transformation of the room where the activity takes place, so that there are different areas the learners will move through. The areas should be: A tomato farm, a transport station, roads to transport our food item (from the farmer to the factory, to the supermarket), a factory, and a supermarket.

Materials needed:

- Tomato plants in different stages of growth (maybe you can visit your local plant nursery and get these as a donation).
- Green piece of cloth or mat (representing the farmers land).
- Tomatoes. Ask your local supermarket to save you the tomatoes they would usually throw away at the end of the day.
- Different forms of transport: boat, truck, plane, train or car (any toy transport will work here).
- Tape to create roads on the floor.
- White coats or shirts.
- 4-6 bowls for washing.
- Sorting station: This can be a large cardboard box, cut to have low sides or a serving tray.
- Spoons and mugs.
- Hair dryers.
- Dry tomato soup packaging. This can be made out of paper or recycled glass jars with labels on.
- Image of a food system to show the young learners on [page 57](#).

Time needed

This activity requires at least 2 hours. If more time is available, this should be used for reflection and conversation prior to starting the activity and after the activity has ended.

How the activities work:

1. The learners start with a round robin reflection. An image of a food system is presented and learners are asked if they have ever wondered where tomato soup comes from? They take turns to answer, being allowed to expand if they wish to.

You can extend the reflection to the group by asking the following questions:

- Where do tomatoes grow?
- Which country/countries grow the most tomatoes? (Most tomatoes for consumption in Europe come from Italy and Spain)
- Does anybody have an idea how the tomatoes travel from the farmer to the shop where your mum or dad or other grown-ups who take care of you can buy tomatoes or tomato soup?
- Are there any other ingredients in the tomato soup? If yes, what could these be?



2. After the group reflection, the learners will get started with the activity. The learners can visit their local supermarket (an area of the room) and discover that tomato soup is sold out. The learners will need to help the supermarket by making more tomato soup to sell (and to taste of course).
3. The group now moves towards the area of the room that represents the tomato farm. Here a green mat or piece of clothing can represent the farmland. On this you can place your tomato plants in different stages of growth and include a variety of tomatoes. You can also cut open a tomato to show the seeds inside and explain to the learners that when these seeds are placed in soil, they grow into a plant that produces tomatoes that can be picked. The learners can touch and smell the tomato plants and seeds, and any questions are answered. A container or wooden box with the tomatoes you have collected from your local supermarket are also placed on the farmland.
4. The learners now pick one tomato each from the wooden box and move towards the area that has lined up our transportation. The transportation area should border the farmland. The learners pick their mode of transportation and place their tomato on or in it.
5. When all the learners have picked their tomato and mode of transport, they will collectively travel to the factory.
6. The factory is another area of the room. Here they park their mode of transport outside of the factory before carrying their tomato inside (we created the “factory” by placing tables on their sides). Once inside, an area to get dressed in their white coats or shirts is available. Within the factory there are several stations for the learners to move through:
 - a. **Sorting:** The learners place their tomato in the sorting box and can softly shake this back and forth to make sure each tomato is fresh enough for further processing. Here you can provide some tomatoes that are soggy to be taken out of the sorting box and discarded (if you receive tomatoes from your local supermarket these will be in varying conditions. Discard the moldy tomatoes, but save the soggy and fresher ones). The rest of the tomatoes pass the sorting test and can move on to the next station.
 - b. **Cleaning:** The learners will now wash their tomato. (Provide containers with water on the floor and several learners can share a container).
 - c. **Crushing:** The learners will now crush their tomato to prepare for further processing. Here a mug and spoon are used. Some learners might need some help during this process.

- d. **Drying:** The tomatoes need to be dried to imitate the drying into powder process. Here you can use real hair dryers. Each learner should take turns drying their tomato.
 - e. Once all learners have dried their tomato they can give their mug (with the tomato inside) to an educator, who can make tomato soup from the crushed tomatoes. The learners now receive a packet or glass jar that looks like dried tomato soup from their local area. They will now transport this further to the supermarket for sale to customers. Again, the learner chooses their mode of transport.
 - f. The learners buy the dried tomatoes packet or tomato soup jar and use them to make (pretend) tomato soup at home.
7. The activity can end with making soup from the crushed tomatoes or from a dried tomato packet or tomato soup jar (depending on what is common in your local context).
8. The educators sit down with the learners to taste some tomato soup and collectively reflect upon the different steps in the activity. The following questions can be useful here:
- Did the journey of the tomatoes from the farmer to the supermarket take place as you had imagined it before doing the activity?
 - What was different?
 - How many people were involved in making the tomato soup?
 - If your parent or a grown up made fresh tomato soup from tomatoes grown in your own garden, how many steps could you have skipped then?



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List of Sustainability Values (use as starting point):

Accountability: the state of being accountable, liable, or answerable.
Altruism: Acting to benefit others, even at a potential cost or risk to oneself, without expecting any personal gain or reward.
Care: the provision of what is needed for the well-being or protection of a person or thing.
Cooperation: an act or instance of working or acting together for a common purpose or benefit; joint action.
Conservation: the act of conserving; prevention of injury, decay, waste, or loss.
Charity: generous actions or donations to aid people who are poor, ill, or needy.
Democracy: is a system of government in which laws, policies, leadership, and major undertakings of a state or other polity are directly or indirectly decided by the people.
Diversity: the spectrum of individual differences and the corresponding group memberships and identities that human beings have in society.
Empowerment: the giving or delegation of power or authority.
Equality: correspondence in quantity, degree, value, rank, or ability.
Equity: something that is fair and just.
Forgiveness: willingness to forgive.
Heritage: something that is handed down from the past.
Honesty: truthfulness, sincerity, or frankness.
Inclusion: the practice or policy of including and integrating all people and groups in activities, organizations, political processes, etc., especially those who are disadvantaged, have suffered discrimination, or are living with disabilities.
Integrity: adherence to moral and ethical principles.
Justice: the quality of being just; righteousness, equitableness, or moral rightness.
Mutual respect: treating other people with dignity and recognising their value.
Non-discrimination: fair and unprejudiced treatment of different categories of people.
Prosperity: Ensure prosperous and fulfilling lives in harmony with nature.
Reciprocity: the mutual exchange between two or more participants. It is a social norm in which one person gives something to one person and that person gives something back in return, either immediately or in the future.
Resilience: the ability of a person to adjust to or recover readily from illness, adversity, major life changes or the ability of a system or organization to respond to or recover readily from a crisis, disruptive process
Respect: you accept somebody for who they are, even when they're different from you or you don't agree with them.
Responsibility: the quality or state of being responsible: such as moral, legal, or mental accountability, reliability, trustworthiness.
Solidarity: an awareness of shared interests, objectives, standards, and sympathies creating a psychological sense of unity of groups or classes. Solidarity does not reject individuals and sees individuals as the basis of society. It refers to the ties in a society that bind people together as one.
Spiritual freedom: a state where a person is socially and spiritually free, allowing him to prosper both materially and spiritually.
Stewardship: the responsible overseeing and protection of something considered worth caring for and preserving.
Trust: reliance on the integrity, strength, ability, surety, etc., of a person or thing.
Understanding: mental process of a person who comprehends.
Unity for diversity: the unity among people with diverse cultural, religious beliefs, social statuses and other demographic differences.

Areas of an effective learning environment for sustainability:

1. **Interdisciplinary Approach:** Sustainability is a complex field that merges various disciplines such as economics, environmental science, social studies, health and technology. An effective learning environment integrates these disciplines to provide a holistic understanding of the topic or behaviour being discussed and the practice sought.
2. **Experiential Learning:** Hands-on activities like field trips, lab experiments, and community projects enable learners to engage directly with sustainability issues. This practical involvement helps in internalising concepts and seeing real-world applications.
3. **Collaborative Learning:** Encouraging teamwork and collaboration among learners helps develop critical thinking and problem-solving skills. Group projects can simulate real-world sustainability challenges that require diverse perspectives and cooperative solutions.
4. **Critical Thinking and Systems Thinking:** Developing the ability to analyze and evaluate complex systems is crucial. Learners should be trained to consider the interconnectedness of the sustainability dimensions comprising environmental, social, cultural and economic factors.
5. **Sustainability Literacy:** This involves understanding key sustainability concepts, such as the UN Sustainable Development Goals (SDGs), ecological footprint, life cycle assessment, circular economy and climate change.
6. **Use of Technology:** Incorporating digital tools and platforms enhances learning. Simulations, virtual labs, and online collaborative tools can provide dynamic and interactive experiences.
7. **Local and Global Perspectives:** An effective learning environment connects local issues to global contexts, helping learners understand the broader implications of sustainability challenges and solutions.
8. **Values and Ethics Education:** Encouraging discussions around ethics and values related to sustainability can help learners develop a sense of responsibility and motivation for sustainable actions.
9. **Sustainable Practices:** The learning environment itself should model sustainability through practices like energy and water conservation, use of sustainable resources (e.g. FSC paper, natural cleaning materials) and re-using and recycling. This sets an example for learners and reinforces the importance of sustainability.
10. **Community Engagement:** Partnerships with local communities, businesses, and organisations can provide learners with opportunities to engage in meaningful sustainability projects and initiatives.
11. **Use of Technology:** Incorporating digital tools and platforms enhances learning. Simulations, virtual labs and online collaborative tools can provide dynamic and interactive experiences.

Natural Items list:



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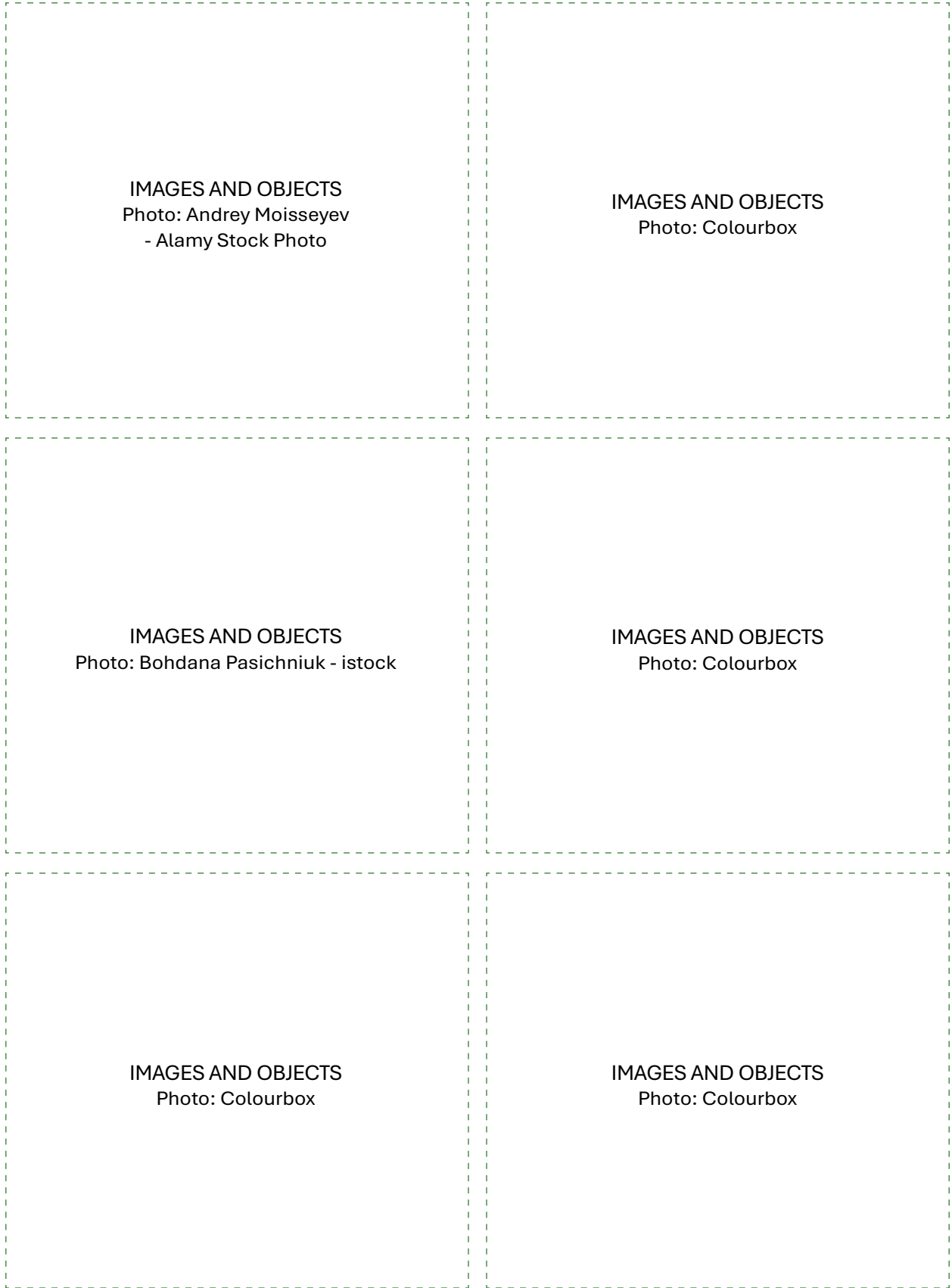
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Man-made items list:



SAFE FOR CHILDREN





No-touch items list:

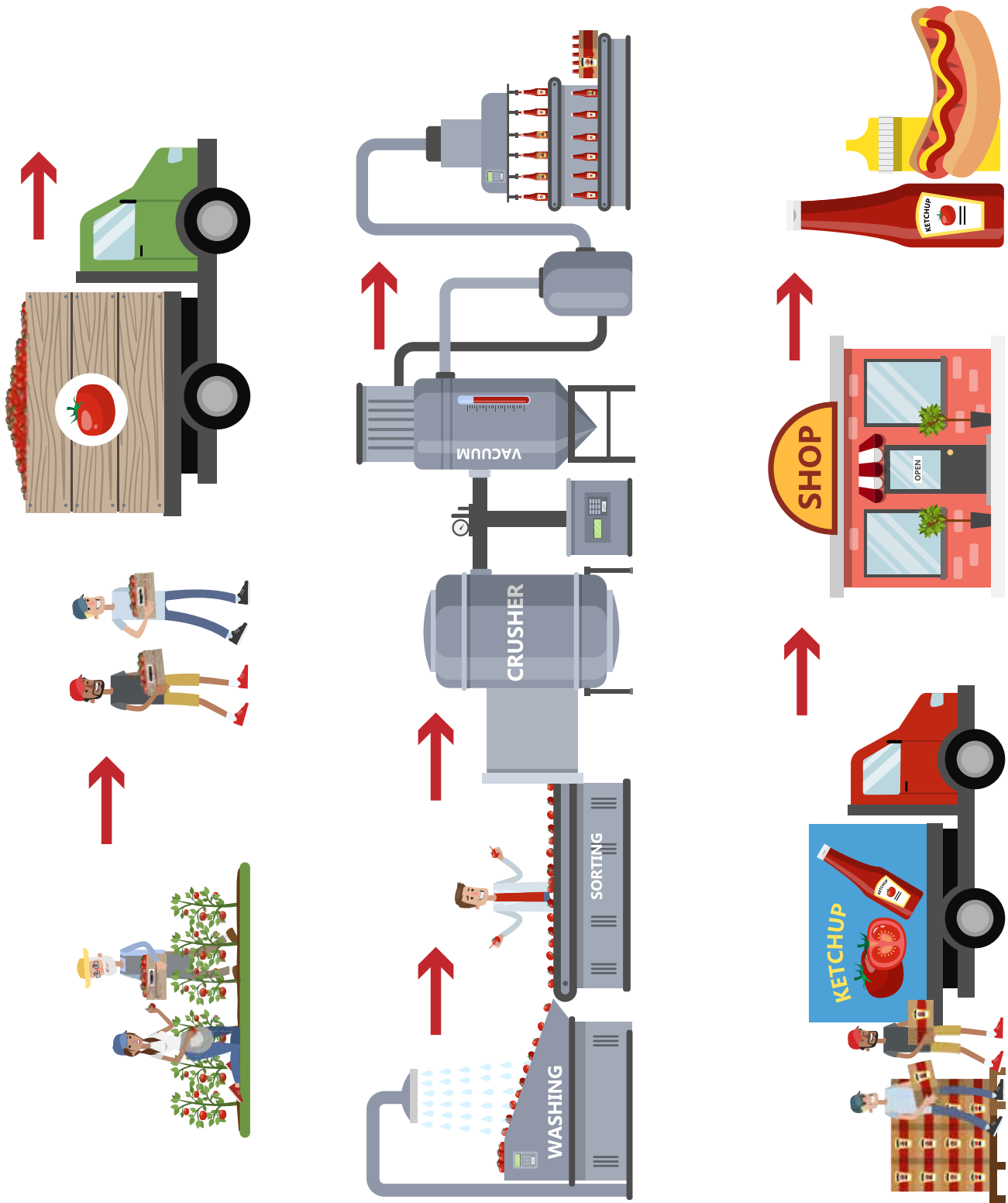


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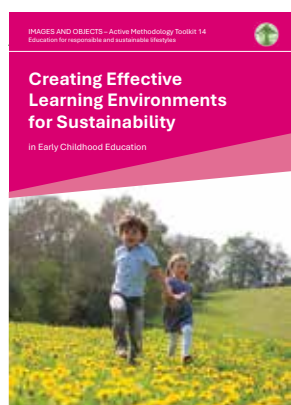
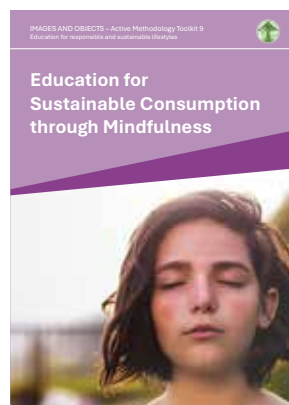
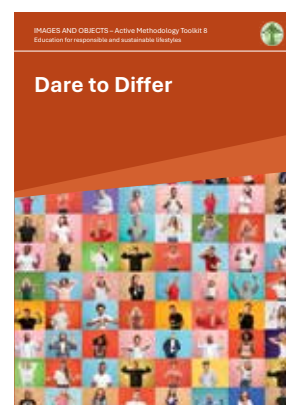
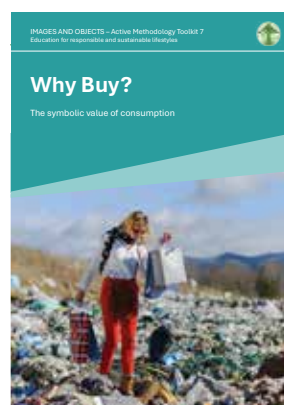
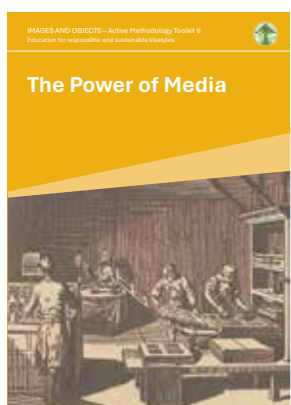
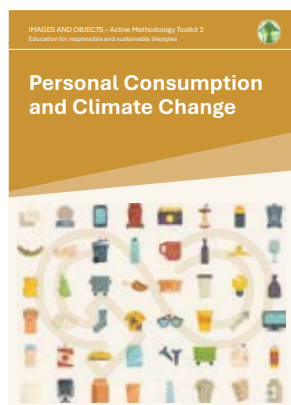
Food system



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“We don’t have to engage in grand, heroic actions to participate in change. Small acts, when multiplied by millions of people can transform the world.”

Howard Zinn

