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Education for Resilience and Sustainability

My Sustainability Skills

A tool for planning and evaluating education.

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Foreword

by Margaretha Häggström and Gitte Cecilie Motzfeldt

Sustainable development in the anthropocene

In the 2000s, the term Anthropocene became known as a term. The term is referred to as a name of the geological period we now live in. The anthropocene is translated at the age of mankind and is characterized by the footprint we leave on the environment which surrounds us. Human impact after the industrial revolutions and up to today can be documented in rocks and ice cores around the world. Drastic climatic changes, increased extreme weather conditions, loss of biodiversity, increased poverty, conflict and refugees are some of the pressing issues we are facing. This is a new situation to deal with in the history of humankind, and there is a common understanding that we need to do something about it, but what this means in time and space, politically and in practical development is less agreed on (Hessen, 2020). However, in teaching our future generation, the school curriculum needs to create awareness and understanding of the challenges facing our societies around the world.

Understanding sustainable development

The understanding of sustainable development is often grounded in the understanding of the definition launched in the Brundtland Commission on Environment and Development in 1987: "Sustainable development is about protecting life on earth and taking care of the needs of people living today, without destroying the needs of the future generations" (p. 42). Over time the understanding of this definition has been both criticized and further concretized. Criticized through both media and research raising questions such as whoos needs should be prioritized and developed? What do we mean by sustainable? Is economic growth a prerequisite for sustainable development? Who has the power to decide what is sustainable future pathways, and who set the limits on behalf of nature? Who is responsible for driving the development? Today, sustainable development, in the United Nations context, is specified through 17 goals which can be viewed as a joint work plan for the world to eradicate poverty, fight inequality and stop climate change by 2030 (FN.no).

A comprehensive understanding of sustainable development by emphasizing the connections between the three dimensions social, economical and environmental dimensions is often taken as a departure in teaching and learning about sustainability. The social dimension includes issues such as equality between society and between people, cultural diversity and human rights and values, the role of institutions and behavioral changes. The economic dimensions include i.e. financial security for people, eradicating poverty and economic growth for people and societies. The environmental dimension involves environmental issues such as climate, natural habitat and ecosystems. But it also includes human impact on the environment. It is important to understand that these dimensions are closely linked or even entangled, and require an interdisciplinary approach to teaching and learning. It is in the intersection of the three dimensions you will find tensions and dilemmas which need to be explored critically. Sustainability can therefore be considered a complex issue which needs complex approaches and answers; hence having impact on the way we teach, learn and understand sustainability issues.

Teaching and learning about sustainability

Teaching is always in some sense normative, that is, it is based on ideas about what is

desirable knowledge in society in a certain time, and thoughts about how teaching should contribute to foster future citizens, as well as the idea of what kind of teaching best leads to the aims formulated in national curriculum (Häggström, 2020). For example, environmental education as part of the syllabus in many countries, aims at enhancing students' knowledge about the environment's importance, and to encourage responsibility towards its protection and conservation. However, there is an ambivalent attitude to how teaching should be designed, and a tension between different perceptions of teachers' tasks (Öhman, 2004). One problem is the paradox between the double educational mission of fostering free, autonomous subjects and at the same time transferring foundational values and norms of a particular culture to future generations (Öhman, 2009). Teachers must strive to provide comprehensive teaching for sustainable development where connections and dilemmas are explored. However, it can be a delicate task to both avoid predetermined behavioral change and to encourage personal environmental standpoints and actions and leave room for free opinion-making.

Environmental education traditions
Öhman (2004, 2009) has identified three traditions of environmental education in Swedish schools: fact-based, normative, and pluralistic traditions. In the fact-based tradition environmental issues are treated as knowledge problems, which can be dealt through more research and information. Scientific facts and models have sole importance in an educational context. Teachers' role is to provide objective facts as a basis for the students' opinion-making. The normative tradition can be viewed as a response to the shortcomings of fact-based traditions, in relation to value-related content. Norms derive from scientific facts, and value-related issues are established through discussions among experts and politicians. Teachers' role is to teach the necessary environmentally friendly values and attitudes and, and thus to change students' behavior in desired directions. The pluralistic tradition is seen as a post-foundational alternative to the fact-based and normative approaches, Öhman (2009) explains. This tradition attempts to mirror the variety of sustainability opinions, and to integrate contemporary debate. The teachers' role is to encourage students' critical thinking and to explore the knowledge basis, interests, and values behind different perspectives. Instead of promoting a predetermined idea of what constitutes a sustainable society, the educational processes will rather explore the complexity constituting the issue of sustainability in different societal contexts.

In relation to education for sustainable development, the fact-based tradition is seen as a limited basis, both regarding that an appropriate education should be able to deal with various aspects of sustainability, and that it should take democratic responsibility for education as such. The normative tradition may create student personal commitments, and teachers may effectively influence students towards more climate-friendly attitudes and behavior (Öhman, 2009). However, there is a risk that education will lose its critical and emancipatory potential and may lead to indoctrination. Paulo Freire, in his *Theory of the Pedagogy of the Oppressed* (1999), underlines that education can work against its purpose and become alienating if teachers try to teach sustainability by teaching the students to receive and remember facts and solutions, instead of letting them critically assess sustainability from different perspectives.

The pluralistic approach seems therefore to have many advantages; it recognises the political and power dimension of sustainability issues and sustainability as a "Wicked

problem"; hence there are no correct answers or solutions to the sustainability challenges. This teaching tradition strives to avoid the risks of indoctrination by promoting students' critical thinking skills and democratic-action competence, Öhman (2009) claims. Students must explore, discuss and negotiate different solutions (Ott, 2019). Such a pluralistic approach relates to the pragmatic philosopher John Dewey's (1916/1980) view of democracy. Dewey was convinced that discussing, arguing and debating are essential educational practices that will encourage and embolden students to learn how to interact and express their standpoints. Common dilemmas - or wicked problems - ought to be solved together, and through collective will. If students are to be able to participate in society they need to be fostered in such a direction. Democratic education thus needs to be relevant for students' lives, and address how political decision making can influence the development of participation practices and vice versa. Student's need to enhance an awareness of their opportunities to participate in decision making, and accordingly, teachers must provide relevant educational experiences that support them in expressing their arguments. At the same time, students learn to accept the arguments of others. Democracy is in Dewey's reasoning a mode of life, rather than a learning content.

GreenComp
The state of the world points at a growing need for people to enhance their attitudes, knowledge, and skills to live, work and act in a sustainable way. To support education towards this direction, the European Union has published a reference framework for sustainability competences: *GreenComp*, which aims at providing a common ground and guidance to educators and learners (Bianchi et al., 2022). It also aims at advancing a consensual definition of what sustainability as a competence might entail. GreenComp identifies a set of sustainability competences to provide education programmes, and aims at promoting ways to think, plan and act with empathy, responsibility, and care for our planet and for public health. This report forms a framework for learning for sustainability and can be applied in any learning context. *GreenComp* contains four interrelated competence areas: *embodying sustainability values*, *embracing complexity in sustainability*, *envisioning sustainable futures* and *acting for sustainability*. Each area comprises three equally important and interlinked competences. It is essential here to point out that *GreenComp* is designed to be a non-prescriptive reference.

GreenComp can be a comprehensive foundation for, not only implementing sustainability education, but for orchestrating learning situations that trigger learning processes and for developing evaluation tools. The assessment tools need to emphasize learning and understanding different perspectives as well as having a critical eye on the sustainable development at different locations around the world. However, this evaluation tool can be used for teachers' planning and for elucidating what kind of education tradition might underlie the teaching strategy, and what changes may be needed in terms of educational content, pedagogical approach and aims.

Introduction

Introduction

The purpose of *My Sustainability Skills*

This guide, *My Sustainability Skills*, is a tool to be used for planning and as a means of formative assessment of teaching for resilience and sustainability, taken from GreenComp's 12 competences within four main areas. This tool can be used to implement teaching practices and content with focus on action competence, social skills and changed values. The aim of this material is to be guidance for the individual teacher, the educators as a group and for the learners.

The idea of this material is to concretise the 12 competences of *GreenComp* to facilitate understanding of what the goals within each competence mean. The material is meant to be used as:

- a tool for planning and evaluating education, to make sure that the education creates opportunities for learners to acquire necessary skills.
- a tool for self-assessment with which educators and/or learners reflect upon their own sustainability skills.
- a tool for discussion within a team of educators or learners.

It is essential to point out that this tool is not normative, but a tool under constant evolution and should as such be viewed with a critical eye.
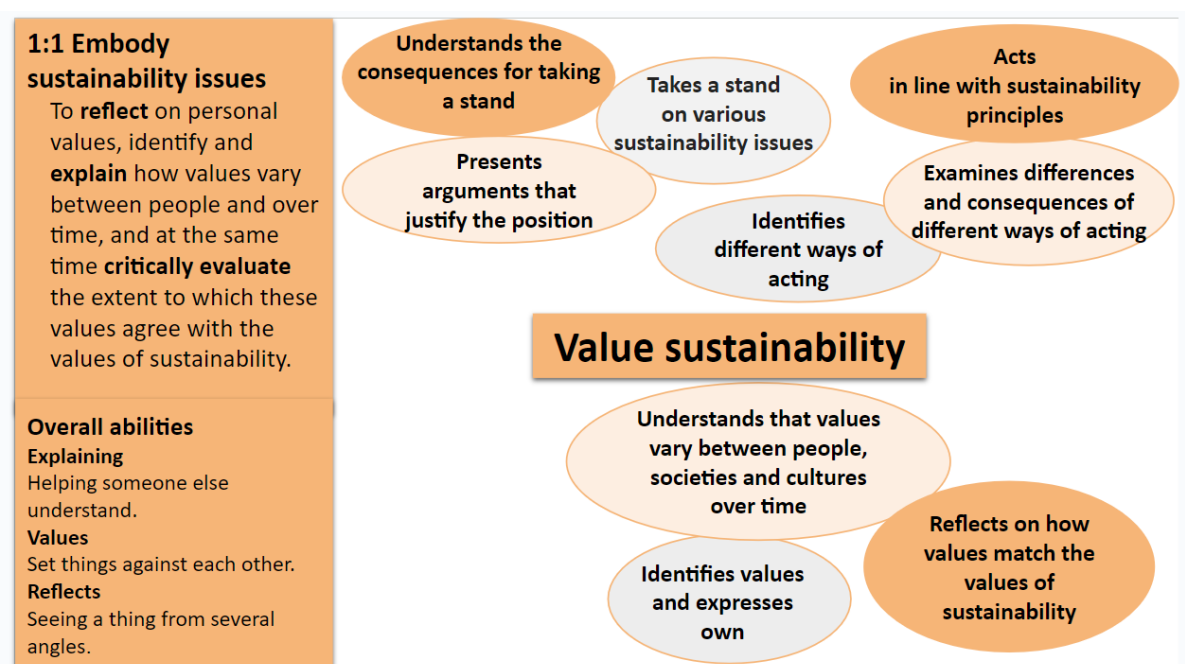
Overview

My Sustainability Skills is grounded in *GreenComp's* conceptual reference model which consists of 12 competences (presented beneath), which in turn are divided into four areas:

1. Embodying sustainability values
    ● Valuing sustainability
    ● Supporting justice
    ● Promoting nature
	3. Envisioning sustainable futures
	    ● Futures literacy
	    ● Adaptability
	    ● Exploratory thinking

2. . Embracing complexity in sustainability
    ● Systems thinking
    ● Critical thinking
    ● Problem framing
	4. Acting for sustainability
	    ● Political agency
	    ● Collective action
	    ● Individual initiative

All the competences are seen as equally important and interconnected. They affect and connect to each other. As such it is advised to work with the competences in any order that fits the ongoing education. As an example: when learners are working on *understanding the consequences of their actions* a certain amount of *futures literacy* is required, such as *envisioning the future.*

Each skill is visually presented in coloured "bubbles" surrounding a specific competence from *GreenComp.* Description of the competence is in the top left of each page. The ellipses, or "bubbles", represent the step-by-step progression of the discrete levels, which this material aims to develop. Each level is increased in colouration; from light grey to a more pronounced colour matching the corresponding *GreenComp* competence area.

1:1 Embody sustainability issues

To **reflect** on personal values, identify and **explain** how values vary between people and over time, and at the same time **critically evaluate** the extent to which these values agree with the values of sustainability.

Overall abilities
Explaining
Helping someone else understand.
Values
Set things against each other.
Reflects
Seeing a thing from several angles.

- Understands the consequences for taking a stand
- Takes a stand on various sustainability issues
- Acts in line with sustainability principles
- Presents arguments that justify the position
- Identifies different ways of acting
- Examines differences and consequences of different ways of acting

Value sustainability

- Understands that values vary between people, societies and cultures over time
- Reflects on how values match the values of sustainability
- Identifies values and expresses own

Fundamental skills

On the bottom left of every page are three skills, Explaining, Evaluating, Reflecting, which should be interpreted as fundamental to the individual competence as well as all 12 sustainability competences. As such, these fundamental skills are important to have in mind and practise while educating within the 12 sustainability competences

Explaining

To explain is to be able to express yourself in a specific way. For us to be able to explain or describe we also need to reflect: What was it really like? How can I explain this to make someone else see another kind of logic? It takes pragmatic ability, adjusting the explanation to the listener. When a learner is explaining in an educational situation the learner is showing their knowledge, but possibly also their lack of knowledge in the given field. When working with *My Sustainability Skills* we envision a progression in the learners´ ability to explain, from concrete experiences to abstract concepts and events.

Evaluating

Understanding that information and sources thereof can vary in credibility is a skill developed over time and through experience. The same goes for any form of evaluation. It is dependent on being able to compare, seeing similarities, differences and finding nuances. To learners, this means moving from the known to the unknown, identifying what needs to be explored and criticised. For example: What difference is there between information, opinions, and propaganda? Furthermore, evaluating requires being able to take a stance regarding complex issues. In the context of sustainable development, evaluating can be about ethical dilemmas or wicked problems (Block, Van Poeck & Östman, 2019), where one solution might have negative effects elsewhere.
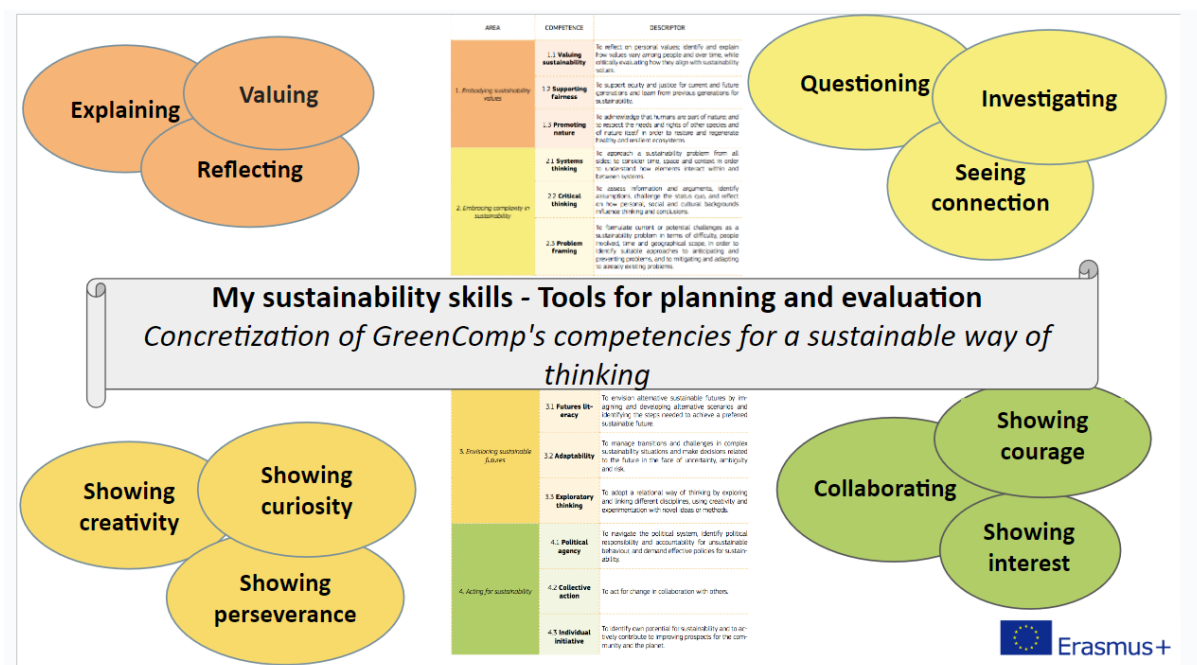
Reflecting

Reflecting is to become aware of your own thoughts, reactions, and values. Reflection is to listen to your own thoughts and experiences and mirror these in your surroundings. Reflection is also a form of learning that can give new perspectives as a foundation for new ideas and ways to work. Reflection differs from "thinking" or "brooding" in that it is goal oriented. It is done with a structure where the goal is to distance yourself from old thought patterns and develop new ones and find solutions to questions. In learning situations it is vital that the learners are given time for reflection.

"Twelve thoughts for twelve competences"

In chapters 2-5, the four main areas of GreenComp and an explanation of the 12 competences are presented. Each of the 12 GreenComp competences is represented by an image with nine discrete levels. These twelve competences are then explained in further detail. This with the goal for educators to be able to digest the competences in relation to their own teaching.

When **planning** education *My Sustainability Skills* can support educators to focus on relevant sustainability aspects.

In **evaluating** education, this material can help educators to gain a view over which competences learners have come in contact with and which of them require more attention; closing the circle and enabling more informed planning for future learning.

1. Embodying sustainability values

The first area of competence encourages us to "To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values". This competence is about equality and justice for current and future generations and supports the view of humanity as part of nature. (GreenComp, p.17)

"When learners are encouraged to reflect and question knowledge acquisition, assimilate it, and put it into practice, transformative learning takes place. Such learning involves cognitive (head), psychomotor (hands) and affective (heart) domains and encourages reflection, questioning and action. Transformative learning is learner-centred, therefore promoting student agency" (GreenComp, p.17).

The three competences within *Area 1: Embodying sustainability values*, are centred around values. Time is needed when we reflect about and question our personal values. Values are principles and convictions that inspire and direct our actions, attitudes, and behaviours. Values are often ingrained in us through cultural traditions. To be able to make conscious, wise and sustainable choices we need to understand what is important to us, make our values clear and identify where they originate from. Being able to practise our values in our everyday lives – being value driven. At this point being true to yourself and in interactions with others.

What I care for, I take care of

The first three competences focus on building a relationship with all living things and wake a sense of belonging as well as respect to nature.

Embodiment means to make issues regarding sustainability your own and to, based on acquired knowledge, form your own values as well as daring to challenge your own understanding and stance on sustainability issues.

Practice in reflecting upon one's own values, identifying why one has them and what affects a person's values is an important skill. This skill is a prerequisite for one to take a stand on sustainability issues and life's big questions.

| 1. *Embodying sustainability values* | 1.1 **Valuing sustainability** | To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values. |
| | 1.2 **Supporting fairness** | To support equity and justice for current and future generations and learn from previous generations for sustainability. |
| | 1.3 **Promoting nature** | To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems. |

GreenComp p.14

When developing these competences, the ability to *explain, evaluate and reflect* is important.

Explaining	Evaluating	Reflecting
Helping someone else understand	Comparing and criticising.	Seeing matters from different views.

Figure 1.2. Table of examples of explaining, evaluating, and reflecting.

Competence: 1.1 Valuing sustainability

For us to become humans with a sustainable way of living we first need to value and understand the value of caring for our planet. The abilities within this chapter aim to develop essential competences to make a stand, share opinions and act accordingly.
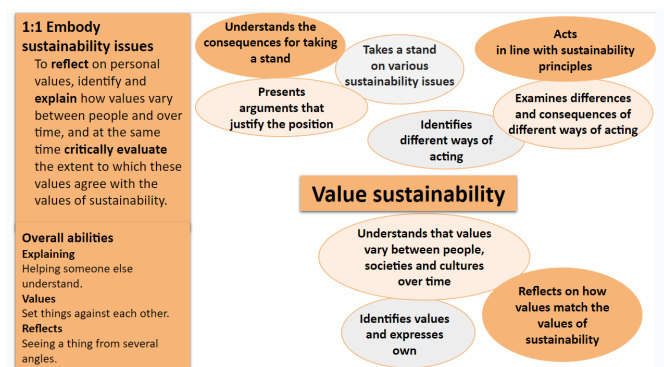
Identifying values and expressing one's own
To be able to value sustainability we first need to understand what is important for us as individuals concerning sustainability. At this point it becomes possible for us to describe and express it to others. To be able to identify values and express their own values the learner is helped by their ability to reflect and explain.

The teacher asks: " What is important for you in your situation?"
The learner replies: "I believe that…"
Example activity: Four Corners and other activities that let learners express their values.

Understanding that values vary between people, societies and cultures over time
When learners, through different experiences, identify their own values and stances; and in sharing their thoughts and values they have opportunities of finding similarities and differences. Through discussions with each other and their teacher, as well as comparing examples from other places, cultures, and ages they can develop understanding of how values are formed by their time, place, and culture.

The teacher asks: "Can you explain why you think so?"
T**he learner replies**: "I believe so because of…"
Example activity: Text- and image-analysis

Reflecting on how values match the values of sustainability values

To further develop the ability to embody sustainable values the learner needs to gain knowledge and understanding concerning their own values and convictions. The learner might need help to concretize and express and motivate their values. The learner could argue for their values through systematising their beliefs and also act on them. Through exercises the learner can become aware that some values are based on fear, some on apathy and others on hope. The feelings and values of an individual have influence on what action they will take.

The teacher asks: "What makes you think that way?"

The learner replies: "Because of … I believe that …", "even though … I think that …"

Example activity: Hot Seat

Taking a stand on sustainability issues

For learners to take a stand on sustainability issues they first need an interest in and understanding of phenomena. Then, they can take a stand on sustainability issues. Through practice in taking a stand on issues, learners develop competence in making their voice heard.

The teacher asks: "What is your opinion regarding this issue?", "What do you believe should be done about it?"

The learner replies: "I think…", "I believe…"

Example activity: Four corners

Presenting arguments that justify the position

There is a difference between taking a stand on an issue and taking a stand while justifying and arguing for one's position. This requires practice. Learners need experience in making their voice heard and justifying their position.

The teacher asks: "What is the reason behind your opinion?", "Is there evidence/basis for your position?"

The learner replies: "I think/believe that…because of…" "Firstly,...Additionally,..."

Example activity: Practice debating, writing a well-argued text.

Understanding the consequences of one's position

Positions, big as well as small ones, have consequences. My opinions have an impact on how I act and on my surroundings. Learners should be given opportunities to act on their opinions and positions, to experience and reflect on what consequences they have.

The teacher asks: "If you do it this way, what do you think might happen?"

The learner expresses: "My opinion is…and therefore I will…and then…

Example activity: Dramatisation

Identifying different ways of acting

When the learners start to understand how different opinions and points of view are related to both actions and consequences of those actions it will become clear that there are

different ways to take action. To get a deeper understanding learners could try to act so that a third party is affected. The third party could be classmates or an object.

The teacher asks: "What can you do, how can you act now?"
The learner replies: "You could do it either like this or like this"
Example activity: Drama

Examining differences and consequences of different ways of acting
When learners get to experience different ways of acting and see how the consequences vary they can develop an understanding of the consequences of their action. This is a way of developing an understanding of how different actions will generate different consequences.
The teacher asks: "What would happen if you…?"
The learner replies: "It will be better/worse if I do like this"
Example activity: Experiments

Acting in line with sustainability principles
When the learner embodies the actions and their consequences, they can identify what is a sustainable action, take a stand and act accordingly.
The teacher asks: "What would happen if you … or if you did … instead?"
The learner replies: "This is one way of doing …, I think it´s good/bad because of … so now I started doing… "
Example activity: Creative work: stop-motion animation

Competence: 1.2 Supporting fairness

Justice is a complex term and can mean different things in different contexts. Perspectives on social and economic justice are needed to discuss justice in an environmental context. Justice and fairness do not mean the same to everyone or everything. Environmental justice implies human justice and fairness without making severe demands on nature. This needs to be borne in mind to ensure justice for future generations as well. The skill is practised through learners experiencing opportunities for responsibility as well as listening to others and respecting their opinions.

Understanding that there are differences between societies and individuals
Before being able to understand and support justice, learners require knowledge and understanding that conditions look different for different individuals and peoples.
The teacher asks: "What differences do we notice here and what could be the cause of them?"
The learner replies: "It is like this over here, but over here…"
Example activity: Venn-diagram

Respecting, understanding and appreciating different cultures

When learners experience varied cultural phenomena, they are also given the premise of understanding the world as a global society, but also that people have different needs and opportunities. Through this, differences can be understood and respected; and strengths in our differences and similarities be acknowledged.

The teacher asks: "How do people in…do…?" "What ways are effective in which place?"

The learner replies: "They do it like this, which is good because…" "Their method/ way of doing things works because…"

Example activity: Discussion about a book, film, or other cultural expression

Understanding that the importance of justice for current and future generations is linked to protecting nature

A fundamental aspect of sustainability is understanding that sustainability is connected to how all people live, understanding the importance of justice and that this has an effect, not only in the present, but also in the future.

The teacher asks: "How do you think this is connected and how to you think it will affect the next generation?"

The learner replies: "If we…then future generations will…"

Example activity: Practising long term analysis for consequences.

Possessing knowledge of how man's impact on nature has increased over time

A deeper understanding about how sustainability is interconnected with the acts of humanity develops the learner through knowledge about how mankind and societies' actions throughout history have impacted the environment and thus also their lives. Through a historical overview the learner can discover how humanity has impacted the environment over time.

The teacher asks: "What did humans do before that we don´t do today?

The learner replies: "They used to … but now we … "

Example activity: Comparing timelines.

Identifying underlying reasons for this

To understand the underlying reasons of man's impact the learner deepens their understanding through comparative studies. How different time spans, geographical regions and the different priorities of societies differ.

The teacher asks: "Can you compare and contrast the impacts of man in these regions?"

The learner replies: "They used to do … because of …, now we do … because of …"

Example activities: Comparative studies.

Seeing how we need to act for change

A deepened understanding about man's impact on nature can provoke thoughts about the learner's own actions. Envisioning a future where the learner can identify ways to a more sustainable world.

The teacher asks: "How do you imagine a sustainable future – what can we change?"
The learner replies: "Since we have done … we now need to …"
Example activities: Envisioning Worlds (Sara Langer)

Understanding and reflecting on personal needs

Reflecting on what is needed for a good life also includes the ability to differentiate between wants and needs

The teacher asks: "What does a person need to live a good life?"
The learner replies: "Do I really need…"
Example activity: "Meet in the middle"

Understanding and reflecting on the needs of others

Environmental justice also means human justice and fairness. As to not only focus on the needs of themselves, the learners need to compare their situation to that of other people, in different places and cultures. This is to understand and identify that different people need different things for them to be able to live "a good life". Learners also require to understand that sometimes the needs of others are greater and more important than the needs of themselves.

The teacher asks: "What does justice mean? Does it mean that everyone gets the same? What is unfair and what is just different? Do all people have the right to a good life?"
The learner replies: "I want… but they need…"
Example activity: Comparing similarities and differences.

Striving for environmental justice

Justice exists beyond human needs. Learners need to develop knowledge about the natural environment and that the needs of other species sometimes must be prioritised above their needs and those of other humans. Through discussions about transport, diet, different material and consumption choices, the learner may clarify different behavioural patterns and understand the complexity that comes with sustainable development. Through this knowledge the learner can find ways to reduce their environmental footprint.

The teacher asks: "In how many different ways could we lessen our ecological footprints?" How could we make the world more just so that everyone can live a good life?"
The learner replies: "Since they/nature…I will act/I think…"
Example activity: promoting responsibility in cooperative exercises where others' positions and needs are acknowledged and respected. For example: through working with open-ended and complex issues.

Competence: 1.3 Promoting nature

What I like I will also care about and take care of.
For learners to like and care about nature they also need to experience it with all their senses. It is equally important to experience nature through outdoor pedagogy as it is to experience it through traditional school subjects. Learners need opportunities to spend time in and be supported in building a relationship with nature because if they care about it, they will also grow to care for it.

Valuing nature for itself as well as for humankind
For learners to see nature as a living subject, not simply a backdrop for human activity and to build a relationship with it they need to spend time in and with nature. This to explore the social values of different natural environments as well as the value in the well-being of nature. This will enable learners to understand the connection between nature's well-being and their own.
The teacher asks: "In what ways can humans find strength in nature?" "Is it the same for you? Why/why not?"
The learner replies: "I enjoy being in nature because…"
Example activity: Spend time in nature locally and find a spot where you feel safe. Sit for a while and relax, taking note of sounds, smells and whatever might be living around you.

Learning that all basic human need come from nature
Every human need grounds itself in the state and resources of nature. Through education and aesthetic experiences in nature, learners can begin to understand that nature sets the conditions for how humans can live.
The teacher asks: "Have you thought about where everything humans need comes from?"
The learner replies: "We get…from nature"
Example exercise: Finding out where everything in our classroom originates from.

Learning that humans cannot survive without a functioning nature
Based on the example exercise above, learners can develop understanding of how dependent on nature's resources humans are. With the understanding of the effects human activity has on the environment and its bounty, learners can also realise that nature is not dependent on human survival. It would do exist without us.
The teacher asks: "Is there anything we humans need that does not come from natural resources?" "How do you think today's human consumption of natural resources affects nature?"
The learner replies: "If we are to build/construct material things I think…" "We cannot use up all of the…"
Example exercise: Writing a poem about nature based on our senses. Watching parts of The Blue Planet or Our Planet series.

Caring about nature

For learners to develop a relationship with nature and different natural environments they need to have repeated experiences in and with these places. They need to experience the recreational and pleasurable values of the forest, field, and coast. Through aesthetic experiences and feelings of belonging to nature, care for the well-being of nature can grow. Through this, the learner can see, feel, and appreciate the innate value of nature.

The teacher asks: "How does this place and this environment make you feel?"

The learner replies: "I appreciate…"

Example exercise: Excursions containing exercises with our senses.

Learning the value of all living things

For the learner to deepen their understanding of nature's functions and services they also require knowledge of different organisms and natural cycles, big and small. Through this, the learner can develop an understanding of how organisms interact in different cycles of nature as well as how the cycles of organisms together create ecosystems that connect and are completely dependent on each other. Such knowledge is fundamental to understanding the function and necessity of all living things as well as understanding that humans are part of these systems. Then, the learner can start to understand and see the value of the organisms around them.

The teacher asks: "Which cycles do you think are important to you?"

The learner replies: "...is important to me"

Example exercise: Visualising cycles and ecosystems in models

Showing empathy with all living things

A path to develop and deepen a relationship with other living things is through encounters with nature. While spending time in natural environments learners will, with high probability, encounter signs of human activity such as trash. These discoveries are a clear example of how human activity affects nature. Through collaborative reflection, learners have opportunities to express empathy and discuss possible actions for a positive impact on natural environments. In turn, this can lead to learners developing empathy as well as showing stewardship towards our world.

The teacher asks: "How does seeing this make you feel?" "Is there anything we could do about it?"

The learner replies: "I feel…" "We could…"

Example activity: Every learner gets to plant a tree, care for it, and have responsibility for its survival; all this while documenting the life cycle of plants.

Understanding how ecosystems can be restored/re-created

With knowledge of various ecosystems along with the insight of their own ability to act sustainably, learners will be able to develop faith in humanity and their own ability to restore. Understanding that humanity can act to change ecosystems in a positive direction has the potential to instill hope in learners.

The teacher asks: "How could we act to stop or change these trends?"

The learner replies: "I believe we can change this if we…"

Example activity: Constructing insect hotels as well as other positive actions for the local ecosystems.

Acting to restore/re-create

What is required, not only by students in school but by all citizens of a global community, is knowledge, skill, and the ability to act for the restoration of ecosystems. For learners to be able to apply knowledge that contributes to the restoration and re-creation of ecosystems, they need the ability to imagine different scenarios and practice in thinking as well as acting in a proactive manner. Through varied exercises the learner can show a willingness to act sustainably. For example, picking up trash they encounter in the school yard or in natural environments they find themselves in.

The teacher asks: "We should not leave it like this, do you have any suggestions on what we could do?"

The learner replies: "...is important to me, therefore I choose to…"

Example activity: Joining various initiatives such as the Swedish movement "Keep Sweden Clean".

Influencing those around me to restore/re-create

In developing toward becoming democratic and sustainable citizens, education needs to support learners in taking a stance on sustainability issues and act accordingly. A possible path to this is creating opportunities for learners to spread both knowledge and the will to act for the restoration and re-creation of ecosystems to others. By doing this, learners will also be acting as positive role models within their social contexts.

The teacher asks: "Is there a way that we could show and teach other classes, people or politicians the importance of affecting nature in a possible way?"

The learner replies: "We could…"

Example activity: Through discussion and democratic processes, choose an action to take.

2. Embracing complexity in sustainability

The competence area 'Embracing complexity in sustainability' is about:
- empowering learners with systemic and critical thinking, and encouraging them to reflect on how to better assess information and challenge unsustainability
- scanning systems by identifying interconnections and feedback
- framing challenges as sustainability problems which helps us learn about the scale of a situation while identifying everyone involved.

(GreenComp p.19)

Sustainability issues are complex. They not only consider ecological sustainability, but also social and economic sustainability. An action can have, not only direct and immediate, but also indirect and unforeseen consequences. For learners to understand the complexity of sustainability they need understanding of how different systems are constructed as well as how systems depend on their components. Therefore, learners need practice in assessing, questioning, and challenging information as well as compiling incoming information to draw their own conclusions.

2. Embracing complexity in sustainability	2.1 **Systems thinking**	To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems.
	2.2 **Critical thinking**	To assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions.
	2.3 **Problem framing**	To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems.

When developing these competences, the ability to *question, investigate and see connections* is important.

Questioning	Investigating	Seeing connections
Asking questions. Challenging what is said.	Immersing oneself, alone or with guidance.	Paying attention to connections, causes and consequences between different phenomena.

Competence: 2.1 Systems thinking

The opposite to systems thinking is thinking in fragments, analysing each part by itself. Within systems thinking, the ability to think holistically and see things simultaneously is important. Additionally, when we are looking at individual components, we also need to be able to think of them as part of a context or system.
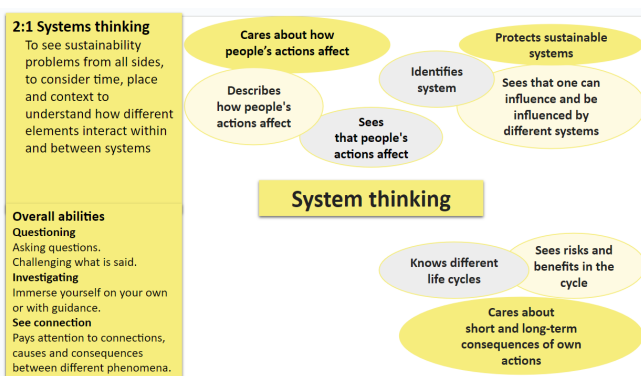
Identifying systems
Everything and everyone is interconnected within systems, affecting each other. It could be a family, an ecosystem, or a school. Should a part of the system be upset the premise for the system will be affected. For learners to embrace the complexity of sustainability, they require knowledge and understanding of what a system is as well as its parts.

The teacher asks: "How can we describe these systems, what makes up the systems?"
The learner replies: "*x* is connected to *y* which in turn is connected to *z*. Together they make up a system of…."
Activity exemplar: Identifying the components of systems with the help of models.

Seeing that one can influence and be influenced by various systems
Someone or something else is always affected by our choices and actions. Every action has consequences, good and/or bad. This also applies to the actions and choices of others. Because we all share this planet and are all part of different interconnected systems, we affect and are affected by one another and our actions. By making different systems visible, the learner can identify and understand contexts, events, and the provenience of human activity.
The teacher asks: "How are these connected?" "What might be the consequences if we…"
The learner replies: "If…is happening over there, we will be affected like this" "If we…then they…"
Exercise exemplar: Practising analysis of consequences through actions

Acting for preservation of sustainable systems
With knowledge of how ecological, social, and economic sustainability are connected and form various systems, the learner can develop understanding that everyone within a system is affected by each other. Then, the learner can make decisions and take actions toward the preservation of these systems.
The teacher asks: "How could we change the way we act to preserve this system and keep it in balance?"
The learner replies: "We could/should try…"
Activity exemplar: Working with key questions or wicked problems.

Seeing the effect of human actions

First, when the learner has developed knowledge and understanding of how things are connected, they can realise that human activity affects their environment, but also that human inaction has an effect.

The teacher asks: "What happens if we do not…and what do you think we should do?"

The learner replies: "If I do not…it would be bad for the environment"

Activity exemplar: Measure and compare energy consumption, human access to food, work etc.

Describing the effect of human actions

With developed systems thinking, the student can express the consequences of their own and others' actions.

The teacher asks: "What if…?

The learner replies: "If I do/don't do ... then there will be ... consequences."

Exercise exemplar: Drama exercises according to the principles of the Theatre of the Oppressed.

Caring about the effect of human actions

With a deepened understanding of the relationship of environmental issues to social and economic sustainability, as well as to policy decisions and society's regulations, the student can see connections between active and passive actions and issues related to sustainability. Education can in various ways encourage a positive view of lifestyle changes. Trying to influence people's actions in environmental matters for a positive outcome.

The teacher asks: "How could we do this in a more environmentally friendly way?"

The student expresses: "We have to... otherwise..."

Exercise exemplar: Design and create artefacts from recycled materials.

See connections. Systems thinking!

Knows different life cycles for both living things and products

With knowledge of what a life cycle is and means, the student can develop an understanding that products also have a life cycle.

The teacher asks: "What do we need to be able to manufacture…?

The learner replies: "To make a ... you need ..."

Exercise exemplar: Create an artefact in craft lessons. Grow something to understand the process: from soil to table.

Sees risks and benefits in the life cycle

When the student has developed an understanding that it is not only living organisms that have and/or are part of a life cycle, but also man-made things, it is made clear that a life cycle is part of a larger context. Through exploratory tasks, the student can see how life cycles affect and are affected by other life cycles and systems.

The teacher asks: "What happens when people use this resource?
The learner replies: "This one … needs … that means …"
Exercise exemplar: Visualize in an overview all the steps required to create a certain artefact, e.g.

Cares about short and long-term consequences of own actions
It can be easy to see the short-term consequences of human actions, such as when cutting down a forest or fishing in a lake. However, it can be difficult to get an overview of long-term consequences. By studying how consumption and lifestyle can affect different systems, the student can choose to act accordingly.
The teacher asks: "What consequences can our (we in the Western world) consumption and behaviour have in the long run, and how can we change our consumption for the better?"
The learner replies: "I'm going to switch to ... because it's better for ... "
Exercise exemplar: Make two comparative mind maps.

Competence: 2.2 Critical thinking

Critical thinking includes skills such as analysing, reflecting, drawing conclusions, evaluating, and questioning. Having the ability to think critically is fundamental to being able to actively participate in a democratic society. Critical thinking involves an approach, which basically aims to find solutions to problems and to be able to reflect on knowledge, as well as understand that this ability to reflect is part of a constant process. To critically examine something or someone, to dare to question authority, requires courage and self-confidence. This competence is best practised in safe environments.

Dares to have an opinion
In working with sustainability issues, the student will be faced with different perspectives about which to take a stand. The teaching therefore needs to contribute to the student understanding that we all have opinions and perceptions regarding sustainability issues.
The teacher asks: "What is your position on this matter? What do you think?"
The learner replies: "I think…"
Exercise exemplar: It is important to spend a lot of time doing Four Corners and Argumentation exercises.

Reflects on why I hold my opinion
When the student has an idea about something, the student's self-awareness can be developed by practising self-reflection and asking themself: "How come I think this way". It helps the student develop the ability to critically examine their own opinions. What/who is the basis for them?
The teacher asks: "How come you think so?"
The learner replies: "Because of…I think that…"
Exercise exemplar: The Why Chain

Presents opinions with arguments
As a citizen in a democratic society, the individual needs to be able to choose and make different decisions. Sometimes the ability to support opinions with arguments and express them is needed.
The teacher asks: "On what grounds do you think that..., is there any evidence for the opinion?"
The learner replies: "Because..., ... and ... I think that..."
Exercise exemplar: Present arguments that justify the position taken.
There is a difference between taking a position and then justifying and arguing for one's cause. This also requires training by being exposed to it on many different occasions, big and small.

Differentiates between fact and opinion
There is a difference between thinking something, feeling something based on one's subjective opinions and being able to base one's opinions on objective facts. Teaching therefore needs to support the student in identifying subjective opinions based on their own opinion and feelings, and opinions based on knowledge and research. It also means being able to reveal opinions and perspectives that are presented in different media and by different people.
The teacher asks: "Why has someone written this, what is the idea behind it, what message does the sender want to convey?"
The learner replies: "An understanding of…, can come up with examples of opinions and facts."
Exercise exemplar: Text analysis

Examines and questions sources
In order to be able to review and question different sources, the student needs to practise their analytical skills, through various exercises to critically review information. Who shares the information? What could be the reason behind this (intentions behind the information)? Where does it come from? Is the information correct?
The teacher asks: "What is actually claimed? What kind of opinion is it, and what does the argument look like?"
The learner replies: "Here it says that..., I wonder if that's right" "...says it's this way, but I wonder if..."
Exercise exemplar: Text and image analysis.

Select sources and form opinion accordingly
In order to be able to argue for their opinions, the student needs to practise the ability to choose credible sources, which in turn can lead to forming opinions. They need to be able to distinguish between a credible source and a less credible one. It can be difficult at a time when authorities, such as politicians, express a sceptical attitude towards research-based knowledge and evidence-based reasoning.
The teacher asks: "What is true and false? Who is speaking? How do we become critical of sources?"
The learner replies: "I have read...and asked...and now I think that..."
Exercise exemplar: Make a joint list of credible and less credible sources.

Critical thinking!

Identifies norms

People's opinions and perceptions do not arise in a vacuum – they are created in the sociocultural context. In a group, small or large, different norms are formed, which become the group's guiding principles. They can be hard to spot because they are often passed down from generation to generation. As part of our critical review, we all need to be vigilant about what norms we are surrounded by and are a part of. The student therefore needs to practise the ability to see unwritten rules in different social contexts.

The teacher asks: "What do you think most of us people think is okay and not okay to do when..."

The learner replies: "I saw that everyone … We always usually…. But they seem a little different...."

Exercise exemplar: Activities that make standards visible, e.g. stereotypes around gender and/or ethnicity

Reflects on the norms

A democratic society is built on a shared understanding of which basic values are important for building a good and safe society. At the same time, old values remain, both in policy formulations, such as the school curriculum, and in people's beliefs. Standards need to be continuously reviewed and revised to adapt to new conditions. This also applies to schools at all levels, from policy level to classroom level. Through this, students can influence the norms that prevail, and understand why norms exist at all.

The teacher asks: "What do you think is good about..." When can norms be a disadvantage?"

The learner replies: "Why do most people …?"

Exercise exemplar: Comparative study: Positive and negative consequences of certain norms.

Questions and challenges norms

In order to deepen the ability to, through critical examination, verbalise perceived problems with certain norms, the student can also challenge the norms.

The teacher asks: "What do you think is the case? How do you think it should be instead?"

The learner replies: "Should it be so? Can't we instead…."

Exercise exemplar: Role play, for example, around different domination techniques

Competence: 2:3 Problem framing

Problem framing includes the ability to make and follow reasoning and to argue for possible solutions. Even in connection with problem formulation within the framework of sustainability, these abilities can be central.

Many of the abilities that we, in this tutorial material, want students to have the opportunity and support to develop require an open and permissive classroom where questions, spontaneity and exploratory thinking are encouraged and taken advantage of.

"At a basic level, problem formulation is about determining what it is that makes a particular situation challenging and then identifying the best course of action to address it, something that requires systems thinking. Problem formulation above all contributes to establishing goals and setting out the direction for the problem-solving process" *GreenComp* pp 21-22.

Formulates questions
Fundamental to this competence is the ability to, for oneself, formulate a question that can lead to new knowledge or information.
The teacher asks: "How do you ask a question to which there is no obvious answer?" "What question words can we use?"
The learner replies: "I wonder how…" "What if…"
Exercise exemplar: Collect anonymous questions and reflections that are raised by the students based on a picture or a video clip.

Dare to ask their questions
In order for the student to feel confident in asking questions, the teaching needs to provide room for the student to practise formulating questions in a creative and safe way. Only then can the student direct questions to relevant people and sources.
The teacher asks: "How can we formulate open questions?"
The learner replies: "If I want to know more about... I can ask..."
Exercise exemplar: Ask, guess, run!

Dares to ask critical questions
Asking critical questions can be very difficult, as it often means asking questions that challenge an authority, or a norm (see also 2.2 Critical Thinking - Identifying Norms) or the status quo. This requires courage and training, but also the ability to see which questions that, if asked, could lead to the development of new knowledge.
The teacher asks: "How can we question a statement or a norm in a constructive way?"
The learner replies: "...means it's this way, but I wonder if it's true. I could ask…" "It doesn't feel like… right, I'm asking."
Exercise exemplar: Drama exercise in groups of three. An authority, a protagonist, and an antagonist.

Defines problems

In order to further develop the ability to formulate different types of questions, the student needs to practise identifying why a certain situation is challenging or problematic. Only then can the student ask questions that question and challenge prevailing norms.

The teacher asks: "In what way is this problematic?"

The learner replies: "...is a problem because..."

Exercise exemplar: Three solve problems individually before discussing solutions with others.

Identifies what caused the problems

Once the student has practised identifying problems, they need to learn to go behind the problem and analyse what is at the root of the problem and explore how it has arisen.

The teacher asks: "How could this problem, this norm have arisen?

The learner replies: "...is/could be what caused the problem."

Exercise exemplar: choose one of three explanation options. The Why Chain. The Problem Tree.

Suggests solutions

By having learned to identify and analyse the causes and consequences of something, the student can propose solutions to the problem.

The teacher asks: "Now that you know this, how could we proceed with…? What solutions can you see?"

The learner replies: "If... is what created the problem, we could do... to solve it."

Exercise exemplar: Collaborative discussion

Solve problems!

Sees that problems can be seen differently from different perspectives

When teaching is based on a pluralistic perspective, the student has the opportunity to develop an understand that challenges can be experienced and explained in different ways. Sometimes other people's views on challenges are at odds with our own perceptions. The student needs to learn to relate to that.

The teacher asks: "From what perspective do you look at this?"

The learner replies: "I mean it's a problem because..."

Activity exemplar: Listen to the other person.

Sees that what cause the problem and thus solutions can be seen from different perspectives

It is not only the problems and challenges themselves that can be perceived differently. Even the reasons behind it can be interpreted in different ways. This in turn has consequences for which proposals for solutions can be formulated. This is clear in party politics.

The teacher asks: In how many different ways do you think…

The learner replies: "...is a problem because...therefore a solution could be..."

Exercise exemplar: Create a debate with party leaders.

Argues about sustainability from different perspectives.

With an understanding of different perspectives from which to view dilemmas and challenges, and that these differences are also reflected in the argument for and against an opinion and finally in the proposals for solutions and measures that are formulated, the student can identify pros and cons in problems and solutions concerning sustainability.

The teacher asks: "How do A and B view sustainability?"

The learner replies: "On the one hand so ... on the other hand ..."

Exercise exemplar: List of pros and cons.

3. Create visions for a sustainable future

"The competence area 'Envisioning sustainability futures' enables learners to visualise alternative future scenarios and identify actions to achieve a sustainable future. It is essential that learners acquire the competence of 'adaptability' while coping with uncertainty about the futures and trade-offs in sustainability. Applying creative and transdisciplinary approaches to our way of thinking can foster a circular society and encourage learners to use their imagination when thinking about the future."

GreenComp p. 23.

In order to create visions, you need to be able to fantasise and be able to imagine things that you yourself have not experienced. You need to be able to think something out of nothing. To think of something that does not yet exist. You need to dare to ask questions that have not yet been asked and dare to answer without knowing the correct answers.

Overall and important for the competencies are the abilities:

Shows creativity	**Shows curiosity**	**Shows perseverance**
Comes up with ideas, implements ideas, improves one's own and others' ideas and processes them.	Asks questions, seeks information, and investigates. Making their way and testing different ways.	Keeps trying despite setbacks.

Competence: 3.1 Futures literacy

Futures literacy is about imagining alternatives for a future world and creating sustainable future visions. Starting from feelings, values and acquired skills to imagine and develop scenarios for the future is central to developing future competence.

Fantasises freely about the future
In order to develop future competence, it is good to start by letting students fantasise freely, without demands or a "correct" answer to be conveyed to the teacher.
The teacher asks: "How do you think it will look and work in your vision of the future?"
The student replies: "In the future, the cars may look like this..."
Exercise exemplar: Cross-group work

Fantasises based on knowledge
In the next step, the teacher together with the students can decide on specific areas to delve into, and gain knowledge about, for example, transport, agriculture or energy supply. Based on acquired knowledge, students can explore their future vision and fantasise further about the future.
The teacher asks: "Now that you know this, how do you imagine this could develop in the future?"
The student replies: "This is how cars work today, therefore cars in the future could..."
Exercise exemplar: The Puzzle Method, everyone knows a little part.

Visualises several different future scenarios
The ability to imagine the future in an in-depth way can be developed by visualising several different future scenarios based on knowledge and science: "based on what we know, we can imagine several

possibilities for the future".
The teacher asks: "With all the knowledge you in the group now have, what does your future everyday life look like?"
The learner replies: "If ... develops ... then we will get ..., otherwise ..."
Exercise exemplar: Create posters to present in groups.

Imagines possible needs in the future
To develop future-literacy, the class needs to work on identifying needs to respond to, and competencies that will be required in the near future.
The teacher asks: "What knowledge and skills will be needed in the future?"
The learner replies: "I will need...later today" "tomorrow is needed..."
Exercise exemplar: Working with Key Questions.

Visions about needs in a long-term perspective
To deepen the ability to, in a larger time perspective, identify needs that will or may emerge.
The teacher asks: "What do you think you need to learn more about to get by in the future?"
The learner replies: "I need to learn ... because it will help me when I get older."
Exercise exemplar: The exercise "What is possible and desirable in the future?"

Sets long-term sustainable goals
Once students have identified future needs, knowledge, skills, and competencies, they can begin to formulate sustainable goals to meet these needs.
The teacher asks: "What do you want to achieve with...?"
The learner replies: Since it looks like this… we have to… and to get there… we need to…"
Exercise exemplar: Formulate goals.

Identifies actions
Futures literacy is also about the ability to see what can be done to solve problems and meet challenges, and examine what measures may be needed.
The teacher asks: "What actions are needed to solve this problem?"
The learner replies: "We could…"
Exercise exemplar: Choose an action for the problem.

Values actions
As students work to identify different possible actions, they can compare different proposals and evaluate possible solutions and weigh them against each other.
The teacher asks: "Are there any actions that seem to work better than others?
The learner replies: "If we do ... then it will be ... but if we do ... then it will be ..."
Exercise exemplar: Experiment.

Reflects on how sustainable the actions are
A way to understand the potential of different actions to perform experiments. With the help of the experiments, the ability to evaluate solutions from a sustainability perspective can be developed.
The teacher asks: "Which of the measures can be said to be the most sustainable from an ecological, social and economic perspective?"
The learner replies: "If we do... it is more sustainable than if we do..."
Exercise exemplar: Perform durability test.

Competence: 3.2 Adaptability

Adaptability shows itself in both small and larger contexts. It can be about managing a small schedule change, or the ability to adapt to new findings and make sacrifices and changes.

In order to adapt and build individual resilience, the ability to manage emotions is important. New knowledge and experiences can arouse emotions, which make us want to change something in our lives. Emotions can also arouse motivation and action.

Identifies emotions
The ability to identify emotions makes it possible to handle and manage them. To be able to do that, teaching needs to provide time for reflection, so that the student can put their feelings into words.
The teacher asks: "How does it feel now that you understand this? What kind of feeling is?"
The learner replies: "I feel ... about ..."
Exercise exemplar: Reflection exercises: I did, I felt, now I think that.

Sees reasons behind emotions
In order to also understand why people in certain contexts feel a certain way, the student needs to reflect in several steps and ask themselves: How come I feel this way? The student needs to practise putting words to the feeling and then trying to describe the cause. With such training, the student can also understand other people's feelings, and why they may feel the way they do. It can be good to start with positive feelings.
The teacher asks: "Why do you think you feel that way?"
The learner replies: "I feel … because …"
Exercise exemplar: *Hot Seat, Four Corners*.

Identifies and expresses own feelings and reasons behind them
In order to deepen the ability to express one's own feelings and to verbalise the reasons behind them, teaching needs to provide space for exercises where the student practises this very thing. It can be difficult and feel revealing to talk about one's own feelings and requires a good classroom climate and good relationships between teacher and student as well as between students. The teacher must be aware that this type of exercise, alone, can arouse strong emotions. It is therefore good to start with positive feelings, so that the student is confident with the purpose of the exercise and understands what is expected of them.
The teacher asks: "How do you describe a feeling and how can you put into words the reason behind the feeling?"
The learner replies: "I first feel how it feels and then I try to understand why it feels that way".
Exercise exemplar: Writing emotional poems.

Sees more alternatives
In order to see what reasons there are for adapting in a certain situation, the student needs to see different options to adapt to. Adaptability helps the student when they face various challenges in everyday life, in society.
The teacher asks: "Can you tell me about a time when you had to adapt to a situation?"
The learner replies "The bus was cancelled so I walked to school."
Exercise exemplar: Improvisational theatre.

Considers and evaluates different alternatives from a sustainability perspective
In teaching for sustainable development and resilience, this means presenting the student with different alternatives, so that they can then compare alternatives from a sustainability perspective. In this way, more desirable options can be identified. The teaching needs to help the student see the pros and cons of the various options from several perspectives. Only then can the student choose.
The teacher asks: "Which option did you choose and why?"
The learner replies: "I chose between ... and ... and took ... because ..."
Exercise exemplar: Activities where students list pros and cons, e.g. the best decision

Makes thoughtful and sustainable choices
Considering the global crises that characterise our time, there is reason to discuss with students which alternative lifestyles are possible in the place where they live. The students need to develop knowledge about the importance of the lifestyle to more socio-ecologically sustainable alternatives. It takes transformative learning to make lifestyle changes, and it's a demanding process that usually takes time. Sometimes drastic changes are required quickly, as for example in the case of the COVID19 outbreak.
The teacher asks: "What changes are needed and what can we do?"
The learner replies: "Because ... affects the environment in this way, I now do ..."
Exercise exemplar: Making risk assessment analyses.

Understands that change is required
It requires a deeper understanding of the state of the earth and to see how people's actions and different choices negatively affect the environment/society/economy, to also realise that something must be done. The students need to develop in-depth knowledge about, for example, climate change and its consequences to understand that a large part of the world's population must change their lifestyle in a number of areas.
The teacher asks: "What changes can/must we make in our part of the world?"
The learner replies: "We could become more environmentally friendly by..."
Exercise exemplar: The *Diamond Activity*

Deals with adversity/sacrifice/change
A major change in lifestyle is not made overnight. It will be emotionally laborious and difficult. Many of us were forced to make big changes during the lockdown during the Covid19 pandemic. We couldn't move freely, we couldn't see loved ones and for many it was extremely stressful. It may not be possible to prepare for such changes. Divorces, deaths, accidents -– how can we prepare for them, and is it even good for us to do so? However, we need strategies to be able to cope with setbacks and changes. What strategies can be included in teaching to strengthen students' ability to face the changes required? Are there strategies for working proactively? Students need to practise facing unforeseen problems, where together they practise confronting challenges and solving problems.
The teacher asks: "How can this be resolved and how should we prepare if it happens again?"
The learner replies: "... this happened but I …" I can adapt to and solve a problem when it comes.
Exercise exemplar: Event – react – act

Changes one's way of thinking
There are various processes that describe how people change their thinking that have to do with developmental psychology. The more we learn about something, the more likely we are to change our ways of thinking. When we discuss major lifestyle changes, we are talking about transformative learning, which is a necessity for the ability to incorporate, accept and integrate the sacrifices and changes that need to be made in one's lifestyle. Only when we go through a change can we "acclimatise" to the new "normal".
The teacher asks: "Before you thought that...., how do you think now?"

The learner replies: "Before I thought that..., now I understand that.... and therefore I think….". "Last time ... happened I did ..., it worked ... Next time ... happens I will instead ..., if I ... then it does not happen ... at all."
Exercise exemplar: Timeline of my thoughts.

Competence: 3.3 Exploratory thinking

Exploratory thinking means daring to trust that what I feel is right, even if it goes against the norm. For students to have the opportunity to develop and practise exploratory thinking, a classroom, school and community climate is required that not only allows and tolerates but supports and celebrates those who have the courage and creativity enough to venture outside and beyond the existing safe frameworks.

Seeks out and collects information
Part of developing exploratory thinking means seeking and acquiring new information and knowledge from different sources on your own and with others.
The teacher asks: "Have you found any new sources of knowledge, and if so, what new information did you come across?"
The learner replies: "I searched with these keywords and then found.... It said, among other things...."
Exercise exemplar: Make a *Mind Map.*

Processes and compiles the information
Based on their mind map, the student can begin to sort and process the information they have found. This develops the ability to process new information and knowledge, and the student can see connections and make connections between different sources.
The teacher asks: "How can you categorise the information?"
The learner replies: "I have divided the knowledge into... and then..."
Exercise exemplar: Compiling facts from different sources.

Takes a stand and sees the big picture
Once the student has found strategies for dividing information and knowledge from different sources into appropriate categories, they can also begin to summarise and compile the information. It will be a way of seeing the big picture that can be decided upon.
The teacher asks: "Which information would you like to work on, and which do you think is less relevant?"
The learner replies: "I think this is credible and relevant because…"
Exercise exemplar: Discuss with a peer what is credible and relevant.

Dares to think in new ways within existing boundaries
To develop their exploratory thinking, teaching needs to support students to think new things within existing frameworks such as norms and practices. It means being able to see the potential in broadening one's horizons to develop new ideas.
The teacher asks: "How could we develop this so that it works even better?"
The learner replies: "If we add this… and try to…"
Exercise exemplar: try different solutions similar to the current system.

Dares to think outside the box
Sometimes it is not enough to develop ideas without also challenging prevailing norms and practices. Teaching therefore needs to challenge the students so that they act outside of norms and practice. To be able to do that, the student needs to be able to see connections and connect different situations and experiences in a larger context, in order to go beyond them.
The teacher asks: "What if we try to think completely new instead?"
The learner replies: "I think it will be better if we also ...."
Exercise exemplar: *Theatre of the Oppressed*, practise giving response and feedback.

Dares to challenge the status quo
Although paper recycling, waste disposal and clothes collections have been going on for decades, it does not seem to affect new production of various goods. Nothing is happening. In order to challenge the status quo, teaching needs to contribute to more creative activities so that the student develops the ability to think in new ways or on a different scale. Thereby, the student can dare to challenge prevailing norms or practices. Perhaps the student can create new ways of thinking in others as well and spread them further.
The teacher asks: "What can we develop more, and what ideas and solutions do you want to try?"
The learner replies: "It would be exciting to continue to develop the idea of…"
Exercise exemplar: Make a poster about your idea after getting feedback and ideas from classmates.

Tries new things
When students have the opportunity to expand their thinking horizons, they can see different horizons of possibility. When something is perceived as possible to try and implement, the student dares to try new contexts where new experiences are made.
The teacher asks: "What do you think would be possible to do now?"
The learner replies, "I would like to try this idea."
Exercise exemplar: The craft process or other creative processes of various kinds

Dares to fail
With an open classroom climate and good peer relationships, the student can be encouraged to try new things despite the uncertain outcome. When the student has reached their opportunity horizon, he can also reach their action horizon.
The teacher asks: "Do you dare to try this and see if it works?"
The learner replies: "It's always worth trying".
Exercise exemplar: Define and talk about feelings about failure.

Evaluates and improves
When the student dares to try new ideas and act on them, the understanding of how important it is to try and fail, to develop further, can increase. The teaching needs to let students continue to try different thoughts to learn to evaluate, improve and try again. The student can see that based on their attempts and lessons from their failures, they can start new processes of thinking that improve their actions. Such a procedure is central to the development of action competence.
The teacher asks: "What did you conclude after these tests?"
The learner replies: "Now I know what works best and what works less well."
Exercise exemplar: Reflect, evaluate and improve in different learning situations.

4. Acting for sustainability

The competence area Acting for sustainability "is about encouraging the learners to take measures as far as possible, both individually and collectively, to create a sustainable future. The learners are also encouraged to demand that responsible people take action to bring about a change"
GreenComp, p. 25.

Students, like all people, feel fear, worry and sadness in the face of global crises and the changes they bring, which we are experiencing in this now. Activity and actual actions are an effective way to process these feelings. This means also daring to face one's feelings. Strong reactions and emotions such as anger and sadness, can increase the power of action and motivation to do something.

Strengths of collective action
There are challenges and problems that are more easily tackled through collaboration with others and it can be very powerful to act for change.
If the cooperation in planning and problem solving runs well so that the participants in a group can freely express and exchange opinions within the group, the collective effort of the group can produce a result that is better than what the best individual or subgroup can perform alone.

This is called synergy and to achieve it each team member can think to:

- prepare their own perceptions and opinions as well as possible before the meeting with other members of the group, but realise that the task is not solved by those alone, but that missing pieces will be provided by the other members of the group
- feel responsible to clearly express their own opinions and explain them so that the rest of the group can take a position on what they thought
- take responsibility to listen to other group members' opinions and feelings and be prepared to modify their own position based on logic and understanding
- avoid conflict reduction techniques such as voting and compromise or give up to keep the peace. Differences of opinion are helpful if they lead to constructive discussion.

Overall and important for the competence, Act for sustainability, are the abilities:

Collaborating	Showing courage	Showing interest
Listens and contributes with own suggestions and ideas.	Dares to take a stand. Dares to talk in groups.	Asks follow-up questions that deepen and provide more information. Questioning.

The traffic office in Gothenburg has produced four Storylines about traffic that train the ability to act for sustainability. *My Path* focuses on the local environment and is written for grade 0-3.
Pendlar-Kalle focuses on the environmental impact of traffic and is written for grade 4-6, *Love and Madness* is about a moped accident and is written for grade 7-9 and *Our Sustainable City* is written for grade 8 up through high school and focuses on the climate issue. The tutorials are written by Ylva

Lundin and contain information about the Storyline, summary and planning matrix. They are available in English translation on the project's website, https://storyline.education/

Competence: 4.1 Political agency

Develops knowledge based on facts
We need to have knowledge based on facts about the state of the world as a basis for our actions.

We also need to have knowledge of which methods and data materials science is based on so we can trust it. Experts present data made from forecasts based on large amounts of data, which in turn are based on accurate measurements and statistics (historical and current). The more research reports that point in the same direction, the more likely the outcome. Science estimates, for example, that 20 million people will be forced to move from their homes because of climate-related threats. It is important to highlight the positive aspects of this issue so that we do not get students who think everything feels hopeless.
The teacher asks: What can we do to reduce our negative climate impact?
The learner replies: "I think that...I can show that by..."
Exercise exemplar:

Describes and problematises
In order to develop political action skills, the student needs to develop the ability to, based on knowledge, describe and express challenges and problems. Teaching therefore needs to include existential questions such as: What dreams and desires do people have? What can we do to reduce our negative climate impact? What can be positive about changing habits and consumption patterns? What do we want our sustainable future to look like?
The teacher asks: "What habits do people have in our city today, and how can they be improved? What do people do that have a negative impact on the climate, and why do you think they do it?"
The learner replies: "I know that... Then one could..., people need... and therefore they want..."
Exercise exemplar: Interview a friend/family member.

Analysing problems
To be able to act for sustainability requires knowledge and insight into different perspectives. This applies to the perspective of sustainability as well as the perspective of different societies. Teaching therefore needs to give students the conditions to see social issues from different perspectives. In this way, the student can develop the ability to also see and face dilemmas from multiple perspectives and identify possible ways forward.
The teacher asks: "If we make things go well here, what will happen over there? If it benefits us, are there any who are disadvantaged? How is it affected... if we…?
The learner replies: "Maybe it's better that we..." The environment, society, the individual are affected negatively/positively if we…"
Exercise exemplar: Different perspectives on the same material where the students are given the task of put on a role or a perspective.

Expresses ideas

The ability to express ideas includes creative thinking, good communication skills and a certain self-awareness. It is also based on the student being able to use information and being able to determine the reasonableness of their ideas. The teaching needs to be designed so that the students feel safe, knowledgeable, and listened to. Then the student can also present ideas and choose the form of presentation themselves.

The teacher asks: "Which of your ideas do you want to share, and in what ways?

The learner replies: "I think that...I can show that by..."

Exercise exemplar: Idea workshop: Work with brainstorming and criteria lists

Develops and evaluates ideas

When students work for a period with a specific content and theme, they eventually develop in-depth knowledge of the current theme. Based on such knowledge, and with the help of various creative exercises, the student can also get ideas on how things can be done and how dilemmas can be met, as well as how problems can be solved. In pair or group work, students can develop their own and each other's ideas. It is based on knowledge of how they can evaluate pros and cons, and then develop the ideas further.

The teacher asks: "How do you/you intend to build on the original idea?"

The learner replies: "I/we saw that this particular idea was the best to develop, and we intend to do it this way".

Exercise exemplar: Idea workshop: Different variants of peer assessments

Implement and follow up on ideas

For students to continue to work with and develop new ideas, it is crucial that their ideas are taken seriously, and that they are given the opportunity to implement their ideas, individually and in groups.

The teacher asks: "How will you go about implementing this idea?

The learner replies: "Our plan looks like this...first we will, then we do, finally..."

Exercise exemplar: Idea workshop: implementation and evaluation.

Knowledge of democratic processes

The ability to act politically is based on the student developing an understanding of democratic processes and systems. It also includes knowledge of one's civil rights and obligations. This is also fundamental value work where the Convention on the Rights of the Child should form an essential part. Everyone's equal value is a cornerstone of this work.

The teacher asks: "How should we go about making a decision on this matter?"

Students express: "We could vote."

Exercise exemplar: Carry out voting of various kinds on e.g. class council.

Relates to democratic processes

Only when the student has understood principles of democratic processes can they also understand how they work. Then they can accept and relate to democratic processes in the classroom and outside. Democracy is not only about voting to enforce decisions, but also about inclusion, equality, equality and being able to counter unequal power structures and marginalisation.

The teacher asks: "How should we make sure that everyone gets to speak?" "What should we do when everyone has had their say?"
The student says: "We can form our own parties that we can vote for". "It didn't turn out the way I voted, but I'm still in the game."
Exercise exemplar: Party posters with slogans.

Acting for sustainability according to democratic processes
When students get to experience democratic ways of working, they will also understand that their own will or opinion sometimes has to comply with the decisions of the majority. They will also notice that in a democracy there are many voices and that they often want completely different things. Through values-based work, the student can understand the importance of standing up for and supporting democratic processes, even when they can be detrimental to the individual, for sustainable decisions. Therefore, it is important that the student experiences both indirect and direct democracy in student contexts.
The teacher asks: "Why should we vote on different issues in class, school, society?"
The learner replies: "It is important that we get to vote. Even if it doesn't turn out the way everyone wants."
Exercise exemplar: Voting.

Competence: 4.2 Collective action

Together we make a difference. To be able to make a difference in the world requires collective action. It is already required today and definitely for a sustainable future. A big advantage of collective action is that in larger human contexts it can be easier to, for example, make more conscious, sustainable decisions. Assuming that the individuals in the group trust and listen to each other, the group collectively possesses significantly more knowledge and possesses significantly greater ability to act than the individual.

For a group to function, it is required that the members of the group have or assume the basic functions/roles that are required, for the group to function.

Someone or a few in the group must have control over the task and be goal-oriented, solution-oriented, and action-oriented. Someone or a few must show care, be caring, social and make sure that everyone gets to speak. Someone or a few must assume the role of questioner. Finally, everyone in the group must show loyalty, acceptance and conformity and follow what the group decides.

Identifies roles in a group
Collective action is based on the participants in a group identifying which roles may exist and/or be needed in a group and which function these may have.
The teacher asks: What do you think characterises a good group? Which roles might be important?
The learner replies: "In this group/context one could... or...or..."
Exercise exemplar: Brainstorm about roles in a group.

Identifies own role in different groups

By participating in different group work and group constellations, the student can develop the ability to identify their own role in different groups and how it can be different depending on the group and context.

The teacher asks: "What functions or role in the group do you think you could have?"

The learner replies: "with...I'm usually the one who..., but with...I'm an expert at..."

Exercise exemplar: EPA exercise, Individual reflection conversation in pairs and then in whole group.

Adapts actions for the good of the group

When students have participated in different groups in different contexts, they can discover their own and others' competencies and strengths. In this way, the students can use the skills and resources available in the group in a solution-oriented and goal-oriented way.

The teacher asks: "What do you need to take responsibility for in the work and thus act for the good of the group?"

The learner replies: "...is good at..., ...has a handle on..., together we can..."

Exercise exemplar: In group work do a joint meta-analysis.

Plans joint action

When the student has worked in functioning group constellations, the ability to plan for joint action both individually and together with others is developed.

The teacher asks: "What could be done to reduce climate impact?"

The learner replies: "We can do this…"

Exercise exemplar: The students must try to come up with as many suggestions as possible. Collect all the groups' suggestions on flipcharts.

Structures and distributes responsibilities

In group work, a certain structure is needed for the work to proceed. Teaching needs to be designed so that the student develops the ability to jointly structure and distribute individual responsibility in the group. With knowledge of democratic processes and group dynamics, the student can see that the needs of the group can come before their own desires and act accordingly.

The teacher asks: "How will you distribute the work during this lesson?"

The learner replies: "If we do this together, it will be better/easier." "If you do..., I will..."

Exercise exemplar: List the roles needed in the group and distribute them. Have a rolling schedule so everyone gets to try out all the roles.

Cooperates and acts according to the group's plan

With knowledge of how group work can be conducted, and experience in creating a plan for work together, the student has sufficient knowledge and skills to act for the group to carry out the joint plan.

The teacher asks: "How are you going to carry out what you have planned for?

The learner replies: "Now we do this" "How about we do this? Because we need…"

Exercise exemplar: Do group work that results in a joint plan that is implemented – evaluate the work – did it turn out as we thought and hoped?

Listens to other people's suggestions

Listens, tries to understand and take in other people's plans for action.

The learner replies: "The best for everyone is ... so I'm above what I want."
Exercise exemplar: Class Council

Makes suggestions
By having practised taking a stand, evaluating different proposals and perspectives in various exercises, the student can come up with his own proposals and convey these to others.
The teacher asks: "What should you start from in this work?"
The learner replies: "We have all made suggestions, and now we are going to evaluate them and choose the one we vote for as the best option?"
Exercise exemplar: Proposals are written on post-it notes, compared, and evaluated based on strengths.

Helps make other people's suggestions better
With experience of working in groups, listening to each other's suggestions and democratically choosing a proposal, it is essential that the teaching provides space for continued development of selected proposals.
The teacher asks: "Now you have chosen a proposal, how are you going to work on it?
The learner replies: "We will try to develop this proposal so that it becomes even better, by seeing which parts might work a little worse."
Exercise exemplar: Fold-out text

Competence: 4.3 Individual initiative
It is of great importance that early in life you begin to understand that you as an individual make a difference. The sooner we realise that acquisitiveness can be harmful to the world, the easier it will be for each individual to live sustainably.

Understands that choices can be made
With the knowledge that there are several options to choose from in various sustainability issues, the student can also understand that there are active choices to be made.
The teacher asks: "What alternatives are there that seem sustainable?"
The learner replies: "When it comes to ... you can do this or that."
Exercise exemplar: *Four Corner* exercises

Understands that choice and inaction matter
With the knowledge that there are different alternatives that are more or less sustainable, and alternatives that do not meet requirements for sustainability, the student can also develop an understanding that action or non-action has meaning that also has consequences.
The teacher asks: "What do you think will happen if we choose to... or if we do nothing at all?"
The learner replies: "If we continue as usual, … happens" "If I change ... it will be better"
Exercise exemplar: Work with the analysis model

Understands that action can lead to change

When teaching and the school's activities actively work to make more sustainable decisions, and students are involved and act on these decisions, the student's understanding that they can influence through action can increase.

The teacher asks: "Now that all of us work to...

The learner replies: "If I ... I could change..."

Exercise exemplar: Practise arguing based on positions

Differentiates between needs and desires

There is a lot that we humans need, and there is even more that we desire and want. It is essential that students develop an understanding of how needs and desires differ.

The teacher asks: "What do you think all people need to live a good life?"

The learner replies. "I want...but I need..."

Exercise exemplar: "What do you think all people need to live a good life?"
EPA - list on flipchart, EPA - which five options do you think are most important?
If you went to a desert island, what would you take with you? Write and tell.

Sees that there are both rights and obligations

In working with democratic processes, the student needs to learn that they have many civil rights, but also obligations. How do these work and are there contradictions?

The teacher asks: "What rights and obligations do you have when you go to school, ride the bus, play football?"

The learner replies: "I get/have the right to...but I must/am obliged to..."

Exercise exemplar: Work with aesthetic forms of expression that describe rights and obligations in dance, poem, image and/or drama.

Makes sacrifices for sustainability

With in-depth knowledge of, for example, climate change, famine and poverty, and war, teaching can make concrete that sustainable life is complex and that human rights cannot be taken for granted. Such teaching makes visible that people's needs and desires are expressed differently depending on where we live and under what circumstances. Through this, the student can understand that we in the rich part of the world need to make sacrifices to contribute to a more equal world.

The teacher asks: "What can we give up to help….?"

The learner replies: "I would like to…, but I have to…to…"

Exercise exemplar: Sustainability bingo

Identifies what can be done

There are many organisations, companies and individuals who work for a more equal society, for a more peaceful world and for human rights to become a reality. There is much to draw inspiration from that the teaching can include. It helps the student to see that there are problems, but that there are also solutions and solution-oriented initiatives.

The learner replies: "What could we in the class do to help or improve this unsustainable condition?"

The learner replies: "We could…"

Exercise exemplar: Create your own sustainability assignments

Acts in the best interests of the planet

The state of the planet and the ongoing global crises also reach our students. It worries many people. Children and young people are often concrete in their thinking and want to do something. Teaching needs to make use of the power and often optimism that children and young people have for their future. The student needs to practise making active choices and acting in different ways for sustainability.

The teacher asks: "What can we do that is actually good for the planet?"

The learner replies: "If it is a choice between... and ... then ... is more sustainable."

Exercise exemplar: Apply and modify ideas from the Climate Detective project (ESA/Sweden) or the same project in Finland or Norway

Influences others

Through the organisation Fridays For Future and the environmental activist Greta Thunberg, there are many young people who have today opened their eyes to environmental issues. Students must also be given the opportunity to act for sustainability within the school's framework and thereby be a positive role model for others.

The teacher asks: "What actions would you like to take to show others that we care about the environment and social justice?"

The learner replies: "I would like to do... and get others to do the same and together we could..."

Exercise exemplar: What could we do as a class? EPA. Let the class carry out what is voted on.

In conclusion

When educators reflect on their work together, teaching develops. Learning happens when we formulate our understanding in words, share them with others, get reactions and reason about what we understand and don't understand. It is usually said that a group's collective knowledge is greater than the individual's. No wonder that several studies show that collaboration between teachers is an important part of achieving success with teaching. When teachers regularly analyse and evaluate their teaching, it leads to better results for students.

The work with GreenComp and the dialogue during the development of My Sustainability Skills have given us educators at Backatorpsskolan a better and deeper understanding of everyone's responsibility to shape a better world. What we can do within the framework of our pedagogical freedom is to prioritise and highlight the work with My Sustainability Skills at all levels in the school. We hope you do the same.

If you want to participate and further develop the material, please contact us via Anna Johansson's e-mail: annaj@backatorpsskolan.se

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