EDUCATION FOR SUSTAINABLE DEVELOPMENT

DEVELOPING SKILLS IN DEALING WITH UNCERTAINTY

Teaching and learning materials on the topic of
Palm Oil

Imprint

Additional materials are available at: https://bne-umgang-mit-unsicherheit-lernen.de/

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(with its own structure and table of contents)

References in the text and bibliography are cited in line with the American Psychological Association (APA), in accordance with the 7th edition of the publication manual:

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Introduction

Dear reader,

This manual was produced as part of project „ESD for 2030: Emotion and Problem-Focused Coping with Dilemmas, Trade-offs and Risks in Schools." This research project is funded by the German Federal Environmental Foundation (DBU) and is being implemented with the involvement of Institut Futur at the Free University of Berlin (FU Berlin), the FIELDS Institute and the German Society for Environmental Education (DGU). The project involved developing a model through which competencies in dealing with dimensions of uncertainty in sustainable development can be promoted in a school and extracurricular context. Pupils at stage 1 secondary school (years 5-12, age 10-16) are the main target group. The content focuses on the topic of biodiversity, as it is marked by contradictions, dilemmas and uncertainties.

When engaging with sustainability issues, pupils are often confronted with complex problems and interrelationships. Current research on the connection between knowledge and attitudes in the context of sustainability shows that: The more insights young people have into the problems of global development, the more likely they are to become hopeless and lose their motivation to act (Grund & Brock, 2019). Many young people find themselves surrounded by complex issues that can be overwhelming to deal with, preventing them from taking motivated, targeted action. This effect is already evident in everyday individual consumer decisions: organic or conventional farming? Nutella or a palm oil-free alternative? Once the complex interdependencies are considered, the problems quickly reach global dimensions. Many young people are aware of these interrelationships. A lack of knowledge of the problem does not appear to be the cause of becoming unmotivated and unable to act; rather, a collectively perceived sense of powerlessness sets in when it comes to shaping a sustainable world (Sanson et al., 2019). In addition, there is often the impression that the problems go beyond the potential of personal power and that an individual's own actions will make no difference in the complex structures. Based on these observations, it can be assumed that there is an increased need for educational opportunities that allow people to develop skills in dealing with over-complexity, contradiction and uncertainty. But what exactly does this skill entail? What enables young people to meet the challenges of our time in a purposeful way?

In order to find viable answers to these questions, the objectives of ESD were updated as part of the UNESCO World Conference. The Berlin Declaration calls on education stakeholders to pay more attention to learners' individual transformation processes, including cognitive and socio-emotional learning, community and political education (see UNESCO World Conference, 2021 Berlin Declaration).

The model presented here is therefore intended to support pupils in acquiring these competencies and to empower them in dealing with complex global challenges. The study units follow an experience-based approach in which pupils are introduced to specific problems through concrete situational examples. As part of this, knowledge-based research phases are combined with discussions and refl ections on pupils' own attitudes and emotions. (For specifi c suggestions, see p. A17).

This manual is divided into an introductory theory section and a topic-specific collection of materials. The introductory section explains the theoretical background, learning objectives as well as the model's didactic structure. The collection of materials comprises working materials, didactic tips, information and optional add-ons which you can use to optimise the study unit for your group of learners.

Four additional manuals on other topics in the context of the biodiversity discourse, with which learners come into contact in their everyday lives, are available on the project website. The topics do not build on each other, rather they can be worked on independently.

We hope you manage to apply the model successfully using this manual, thus supporting your pupils in dealing with uncertainties in sustainable development.

Wishing you an enjoyable and constructive collaboration process!

Best wishes from the project team,

Prof. Dr. Gerhard de Haan, Susanne Waldow-Meier, Marie Nieberg, Hella Polze & Ilona Böttger

Current crisis complexity as a challenge for educational processes

Education for Sustainable Development (ESD) is increasingly beset by the challenge of addressing diverse and serious planetary crises, which can have a cognitively destabilising effect on learners and trigger strong emotions, stress and resistance (Singer-Brodowski et al., 2022). In the following topic sections, we explore contemporary challenges of ESD in the context of biodiversity, which are associated with contradictions, dilemmas and risks – in short, uncertainties. The relevance of emotions in educational processes for dealing with uncertainties is addressed (Grund & Singer-Brodowski, 2020).

This is followed by the question as to how educators in ESD can constructively support children and young people in dealing with these uncertainties. To this end, we present selected educational science models, which lead to application-oriented recommendations that may serve the "context-related and creative search for good solutions" (Grunwald, 2023, p. 6, *translated citation*). The collection of materials which follows in Part II contains specific teaching and learning materials that can be used in everyday school and extracurricular activities.

Dimensions of uncertainty in the context of sustainable development

Sustainable development

The United Nations (2015) defines sustainable development as development that meets the needs of the present generation and enables growth without jeopardising the livelihoods of future generations. Nature conservation, sustainable economic growth and social justice are the three essential areas that must be taken into account and regarded as interdependent (ibid.). In terms of sustainable development, social justice, economic performance and ecological compatibility should be striven for (Schreiber, 2012), and coherence, synergy effects and cooperation between the dimensions should be brought about. The coherence principle means that the interrelationships between the dimensions are taken into account during decision-making and that the developments in the various areas are perceived as interdependent. No perspective should be left out. At the same time, however, tension prevails between the perspectives, caused by conflicts of interest and conflicting goals (Schreiber, 2020; Schreiber & Siege, 2016).

Contradictions and dilemmas arise and present not only political decision-makers with challenges – we too find ourselves in decision-making conflicts at an individual level. In addition, when making such decisions, the consequences of the various options can never be predicted with certainty. Uncertainty and risk are therefore a characteristic of sustainability-related decisions (Ernst, 2008; Grunwald, 2010). Dealing with contradictions, dilemmas and risks – in short, uncertainties – in a reflective and constructive manner is at the heart of the teaching strategy. The pupils' main focus is on dealing with conflicts in decision-making, not on the ability to precisely define concepts. Therefore, the theoretical delimitation of the dimensions of uncertainties mentioned here is only of secondary relevance for the project implementation.

At this point, you as the project manager are presented with defining background information on the dimensions of uncertainty.

Dimensions of uncertainty: Dilemmas, trade-offs and risks

Dilemmas

Mader (2023) describes dilemmas as „complex situations in which stakeholders have to choose between several poor alternatives and cannot change the conditions of the situation or rank the given alternatives" (p. 18, *translated citation*). Consequently, dilemma situations are characterised by two (or more) unattractive possible solutions, one of which must be chosen. This requires that individuals prioritise their own premises for action and values (Lind, 2006). A dilemma cannot be defined objectively, rather it largely depends on the individual's subjective perception and the social context (Henkel et al., 2023; Lind, 2006). With regard to decisions around sustainability, dilemmas arise „due to the contradictory nature of relevant objectives, forms of knowledge involved, stakeholders encompassed, applicable time policies and normative orientations" (Henkel et al., 2023, p. 18, *translated citation*).

Trade-offs

Trade-offs are usually discussed in connection with economic perspectives: Sustainable development – and biodiversity in particular – mainly comes under pressure due to economic goals and interests. A key feature of trade-offs is that stakeholders have to choose between alternatives that, although both desirable, cannot be realised at the same time. One trade-off that affects biodiversity, for example, is the trade-off between habitat conservation and the use of land for the expansion of renewable energy systems (Obrecht et al., 2021).

In the teaching material developed, the main topic in which this conflict is reflected is „Species conservation and wind power."

When dealing with trade-offs, it is important to counter incompatibility with acceptance and to establish decision-making premises (de Haan & Grüßel, 2023). Contrary to other decision-making contexts, in trade-off decisions, optimising a particular state by choosing the best alternative is not a central component. In the context of trade-offs, there is no such thing as an optimal decision. Therefore, it is more about appraising a given course of action based on the extent to which it is legitimate and justifiable (de Haan et al., 2008). If one option can be deemed more legitimate than the other, the decision will likely be made in favour of this option.

Risks

Sustainable action is future-oriented and, due to its open-ended nature, associated with uncertainties and anticipated risks. It is in learning to deal with these exact risks that the study units provide pupils with support. In concrete terms, this ability means having the capacity to act despite uncertainties and anticipated dangers. However, the learning of such a competent manner of dealing with a risk or event is always influenced by an individual's subjective perception of it, and its personal significance to them (de Haan et al., 2008). Therefore, selected fundamentals of risk perception are presented here.

On the one hand, rational, analytical considerations lead to specific interrelationships being assessed as risks, while the risks in turn influence the consideration processes and decision-making in these interrelationships. On the other hand, our perception of risks is subject to the significant influence of emotional, affective factors (Epstein, 1994). Most of our daily decisions are made quickly and automatically based on emotional risk assessments (Douglas & Wildavsky, 1982; Slovic & Peters, 2006). Although this is often an unconscious process, it exerts a crucial influence on the motivation for certain decisions and behaviours (Baumeister et al., 2007; Damasio, 2020). This happens because emotions can be used to confer meaning on events: Emotions shape how events are perceived and how information is processed, and these processes are accompanied by affective stimulation.

The perception of risks is also influenced to a significant extent by social mediation (e.g. media) (Covello, 2001; Kasperson et al., 1988; Peak & Hoeve, 2017). This leads to additional characteristic influences in the assessment of risks (Earle, 2010; Slovic et al., 2000). For example, the increase in flooding as a risk of climate change became a focal point in the media when the July 2021 flood disaster occurred. Such an acute event leads to the risk being assessed as significantly higher than it actually is, due in part to the media presence. This points to a distortion of risk assessment: „When there is a loud crash, we look closely. Isolated, rare risks, especially those that are difficult to control, are generally overestimated, whereas gradual developments that can only be recognised through symptoms are underestimated and not noticed for a long time" (Ernst, 2008, p. 49, *translated citation*). Risk perception alone is a complex process in which various generalisable and individual patterns come into play. This model does not aim to analyse the mechanisms for all pupils individually in detail. Nevertheless, questions that stimulate reflection should be asked, since dealing with risks and uncertainties in a constructive manner starts with reflecting on our own perceptions. The topic of zoonoses, in particular, provides an opportunity for discussion in this regard.

Relevance of the biodiversity discourse as a topic

The term biodiversity refers to the diversity of all life on earth. This diversity is the result of natural evolutionary processes and is also increasingly subject to human influence. Biodiversity is often regarded as the diversity of species of all animals, plants and micro-organisms. However, this is only one aspect of biodiversity. Other core components of biodiversity include the genetic diversity within species and the resulting individuality of each living organism (Assmann et al., 2014). Another important aspect of biodiversity is the diversity of ecosystems in which living organisms are in constant interaction with each other and with their environment. All these components constitute a complex system of which we humans are a part. At the same time, we are dependent on many environmental services that can only be carried out when sufficient biodiversity is present (Secretariat of the CBD, 2000). In many respects, biodiversity is the prerequisite for processes that provide us with essential foundations of life. For example, a high level of biodiversity is of enormous importance for agriculture (Gerowitt, 2013). Over half of all crops are pollinated by insects, generating an estimated annual worldwide economic output of several billion euros (Lippert et al., 2021). Biodiversity also plays a major role in regulating the climate. An experiment on the productivity of forests showed that over twice as much CO_2 is stored by forests with 16 different tree species than by the monocultures studied (Huang et al., 2018). In addition to diversity in forests, diversity in meadows and soils also exerts a positive effect on the climate. This is mainly

due to microorganisms and fungi in the soil that break down plant and animal biomass, thereby binding carbon and nitrogen (Max Planck Society, 2021).

The environmental services of climate regulation and its role as a food source are two of the many tasks that the planet can only fulfil if sufficient biodiversity is in place. In the Millennium Ecosystem Assessment, a United Nations study on the status and development of ecosystems worldwide, the services provided by ecosystems for humans were divided into four categories (Millennium Ecosystem Assessment 2005, cited in KBU, 2019):

1. Supply services are used for the direct supply of raw materials, food, water, oil, wood and other resources.

2. Regulatory services serve humans indirectly, e.g. through the climate-regulating role of soils and forests, as carbon reservoirs or, by means of floodplains, as natural flood protection.

3. Cultural services relate to natural heritage, tourist and spiritual functions and educational aspects of ecosystems.

4. Basic services (support services) are services that make the ecosystem services of the other three categories possible in the first place. These include, for example, photosynthesis and soil formation processes.

It is not possible to explain the individual services and their dependence on unimpaired biodiversity. Nevertheless, it is clear that biodiversity forms the basis of many of these ecosystem services. If the functioning of important ecosystems is impaired or upset by land sealing, the overuse of natural resources, climate change, environmental pollution and other anthropogenic causes, many of these important services can no longer be guaranteed (Helmholtz-Zentrum für Umweltforschung [Helmholtz Centre for Environmental Research], 2018). This means that humans are also directly affected by the impacts of biodiversity loss.

The sustainable use of biodiversity is included as a goal in the 1992 United Nations Convention on Biological Diversity. In concrete terms, this means that the components of biological diversity should be used in a way that does not lead to the long-term decline of biological diversity and thereby maintains its potential to fulfil the needs and expectations of present and future generations (Secretariat of the CBD, 2000). Numerous risks and dilemmas arise in this context, as already described.

These are to be visualised and processed using various examples in the study units developed as part of this project.

Emotions and the capacity to act in the context of ESD

Human action – in the context of ESD also – can be regarded as the result of a coordinated interplay of perception, cognition and emotional judgement.

„The question as to how this interplay works and how emotions may be plausibly defined yields very diverse answers" and is expressed in a plethora of around 90 definitions of emotions, Waldow-Meier observes (2022, p. 23, *translated citation*). For the scope of this handout, emotions are

considered to be phenomena that support human decision-making and thus enable us to deal with environmental stimuli and cope with situations (Ali & Tan, 2022). Siegel (2017) summarises it as follows: „[...] what we call ‚emotion' is a dynamic and central function that interconnects behaviour, meaning, thinking, perceiving, relating and remembering." (italics in original, p.267)

In a contemporary study (Hickman et al., 2021), 10,000 young people aged between 16 and 25 from ten countries around the world were asked about their emotions regarding the climate crisis. Most respondents stated that they were worried (59% extremely worried, 84% at least moderately worried). Over 50% cited sadness, fear, anger, powerlessness, helplessness and guilt. In addition, over 45% reported being affected by these negative emotions in everyday life. Conversely, fewer people are hopeful about the future. According to a 2017 study, only 19% of people in Germany declared themselves to be hopeful about climate change (Pidgeon et al., 2017). As emotions have a crucial influence on our actions (Pfister & Böhm, 2008), it is important that this topic be addressed in the context of education for sustainable development.

Emotions are often categorised as positive and negative. However, this polarising classification fails to do justice to their many facets and modes of action. For instance, an emotion may have different dimensions, whose modes of action cannot be clearly interpreted (Pfister & Böhm, 2008). In the context of motivation to act in transformative processes, one example is anger: Despite its conventionally negative connotation, it can motivate people to take action, which therefore has a positive effect. For this reason, we do not categorise emotions as either positive or negative here. Instead, in terms of the capacity to act in transformations leading to greater sustainability, it makes sense to consider which emotions have an inhibiting effect, and which have a motivating and therefore favourable effect.

Emotions that inhibit decision-making and action

A major obstacle to sustainable action is the feeling of being **overwhelmed**. This begins with cognitive overwhelm due to the enormous complexity of interrelationships (Grunwald, 2010). In addition, overwhelm may occur at the evaluation level, due to the lack of uniform evaluation criteria as well as potentially conflicting goals and criteria (Grunwald, 2010). However, overwhelm can also quickly arise at the action level. Above all, the difficulty of moving from individual to collective action must be overcome. This often goes hand-in-hand with a **low or lacking expectation of self-efficacy**, as the influence of individual action cannot be seen in the larger overall structure. Purposeful action may also be prevented by **resignation, frustration, guilt** and **shame** (Leuser & Weiss, 2020). One emotion that can strongly counteract change in general, and therefore in social transformation processes also, is **fear** (Berner, 2015). It can come up as fear of loss, or fear of being unable to cope with change and can cause people to avoid facing challenges (Nussbaum, 2019).

So how can educators and teachers empower young people at an emotional level, thereby providing important building blocks to form the bridge from knowledge to action?

Aspects that promote decision-making and action

To implement stimuli for action in a targeted manner and actually take action, people need to believe that they can actually shape the future in a sustainable manner. In this context, **hope** plays a central role as a motivator for action (Grund & Brock, 2019). The presence of hope makes

it easier to pursue goals and overcome hurdles (Kraft, 2022). However, this does not refer to a romanticised form of hope, rather to a form of hope that is reflected in reality and does not disregard real problems and hurdles, nevertheless develops strategies to achieve set goals (Ojala, 2016; Ojala et al., 2021; Waldow-Meier, 2022). This type of critical and constructive discussion should be encouraged through the model presented here. The aim is to avoid overwhelm and to pose challenges in such a way that they can be dealt with in an effective and independent manner. In addition, aspects that promote hope include the visualisation of inspiring examples, the initiation of a change in perspective on previous achievements and the creation or integration of authentic study locations and participatory study formats (Nussbaum, 2019). When discussing courses of action, care should be taken to ensure that these are in proportion to the challenge at hand. If they are inadequate, for example, only very low-threshold individual measures are discussed, which obviously do not represent a satisfactory solution; this can quickly lead to a cynical attitude.

A factor that is closely related to hope is **trust** in current and future possibilities (Kraft, 2022; Waldow-Meier, 2022). Trust is an important emotional factor, especially at the level of risks and uncertainties, because trust assumes that possibilities which, though as yet unknown, are attributed to the power and creativity of the collective and the self, will emerge at some point in the future (Waldow-Meier, 2022).

The ability to tolerate uncertainties, contradictions and ambiguities is also important in relation to sustainable development (OECD, 2020; Singer-Brodowski et al., 2022). As we are confronted with conflicting information and values on a daily basis, **tolerance of ambiguity** can be regarded as a prerequisite for orientation in our society and for shaping transformation processes successfully within it (OECD, 2020). In line with Lenz (2020), enabling learners to experience diversity (also with regard to different points of view and opinions) as the norm is important. In addition, argumentation, dialogue and debating skills are essential to resolve conflicts of interest in the democratic system and for the capacity to deal with ambiguous, uncertain situations. Lenz (2020) also mentions critical thinking, empathy, adopting a perspective and engaging with dilemmas as key aspects and areas of practice when it comes to developing the ability to tolerate ambiguity.

As mentioned above, it is precisely in the context of global challenges that the feeling that an individual's own actions make no difference can arise. The experience of **self-efficacy** can play a major role in breaking down barriers and establishing constructive coping strategies. The conviction of our own efficacy is defined as the individual's belief in their own capacity to cope with a certain challenge using their own abilities (Bandura, 1997). A distinction is made between individual and collective self-efficacy, whereby collective self-efficacy plays a decisive role in the context of sustainability (Hamann et al., 2016).

The role of **resilience** in the context of coping with global crises is in focus in a relatively new branch of research. In relation to the climate crisis, resilience has been defined as having the „psychological ability and resources to process stresses caused by the climate crisis in a healthy, cognitive, emotional, interpersonal and action-orientated way, and thus to harness them as an opportunity for development" (Dohm & Klar, 2020, p. 106, *translated citation*). This definition can also be applied to other problems in the context of (un)sustainable development (Peter & Niessen, 2022). Just like climate change, biodiversity loss, which is at the centre of the project, is an element that has the potential to cause stress and trigger crises and therefore requires the development of

resilience. Resilience factors, i.e. protective factors that are useful to people in coping with crisis situations, have been identified in empirical studies. The resilience factors that are not determined by our genetic make-up but can be acquired are of particular interest for the study units. In relation to coping with stressful situations successfully, the following six competencies are particularly relevant (Rönnau-Böse, 2013):

- Self-perception and perception of self by others (realistic self-assessment)
- Expectation of self-efficacy
- Self-control (emotional regulation)
- Social skills (ability to cooperate and to deal with conflict)
- Problem-solving skills
- Adaptive coping skills (ability to apply skills in relevant situations).

As part of the project, pupils are to train their self-perception and perception of self by others in exchange and reflection phases with a view to promoting these resilience factors. In addition, self-efficacy expectations are to be elevated by means of various courses of action. In the context of sustainability, collective self-efficacy, i.e. being able to achieve something together, is particularly important. By engaging with value judgements and emotions, deepening aspects of knowledge and developing action strategies together, conflict management and cooperation skills can be developed and problem-solving skills acquired.

Shaping competence ("Gestaltungskompetenz") and learning objectives within the scope of the project

The **aim** of the project is to give pupils the opportunity to grapple with dimensions of uncertainty in the context of biodiversity so that they can learn to engage with them constructively, at both individual and collective levels. A didactic concept that specifically addresses selected aspects of the shaping competence ("Gestaltungskompetenz") model (de Haan, 2008) was developed for this purpose. This is the best-known competence model in ESD to date and has already been taken up in numerous framework curricula and international papers (Cebrián et al., 2020).

Shaping competence initially means the ability to „apply knowledge about sustainable development and recognise problems of unsustainable development" (de Haan, 2008, p. 31, *translated citation*). It includes various sub-skills, which collectively constitute the ability to make decisions in terms of sustainable development processes and to implement them at individual and societal levels (ibid.). The following aspects are particularly relevant in the context of social transformation in dealing with biodiversity loss:

- Skill in dealing with incomplete and overly complex information: being able to recognise and weigh up risks, dangers and uncertainties
- Skill in overcoming individual decision-making dilemmas: being able to take conflicting goals into account when reflecting on action strategies
- Motivation skills: being able to motivate yourself and others to take action

The aspects which are relevant in the respective sub-skills and thus represent the specific

objectives of the study units are described below. The learning objectives are formulated based on the objectives described in the shaping competence model (de Haan, 2008) and to which new aspects are added.

Skill in dealing with incomplete and overly complex information: being able to recognise and weigh up risks, dangers and uncertainties

Cognitive analysis and judgement strategies have been cited in the shaping competence model under this sub-skill to date. However, since risks are analytically objectifiable as well as being social constructs (Douglas & Wildavsky, 1982) and their perception is heavily influenced by individual psychosocial factors (de Haan et al., 2008), skills that relate to the emotional, subjective level of dealing with risks and uncertainties also need to be acquired. Emotions influence not only our perception and evaluation of situations, but also our actions. If pupils want to learn how to deal with uncertainties and risks, they must become aware of their own emotions and learn to reflect on and harness them (ibid.). Risks are often embedded in complex causal networks that can trigger overwhelm and hopelessness. In this respect, pupils should be empowered in their ability to work towards a more sustainable world despite overwhelming complexity, contradictions and unpleasant emotions. In order to avoid resignation or paralysis due to fear and overwhelm, it is necessary to start by recognising risks and complexity, being aware of our own attitudes and associated feelings, as well as being able to tolerate contradictions and complexity. Therefore, in addition to dealing with risks at an analytical level, the ability to tolerate ambiguity should be promoted as the foundation of the capacity to act.

Accordingly, the following objectives for the study units can be derived from this sub-skill: The pupils ...

- are able to analyse and assess the risks and dangers of unsustainable actions,
- recognise the complexity of interrelationships,
- become aware of and reflect on their own emotions when dealing with risks, dangers and uncertainties,
- engage with the question of trustworthy sources and reflect on how they influence their thoughts and actions.

Skill in overcoming individual decision-making dilemmas: being able to take conflicting goals into account when reflecting on action strategies

This sub-skill relates to competing goals which, although they are often of equal value, trigger the dilemma of being able to achieve only one of them. Nevertheless, a decision has to be made. By addressing this target skill, detailed training should be provided on the ability to make decisions in dilemmatic situations with regard to sustainable development (de Haan, 2008). This initially includes pupils' ability to recognise and describe dilemmas and to position themselves in relation to them. Since the act of positioning oneself in the context of dilemmatic decision-making situations is always linked to the formation of value judgements, and value judgements have an inherent emotional component, judgement processes are always subject to emotional processes (Petri, 2018). Therefore, reflecting on our own attitudes and emotions also plays an important role in dealing with dilemmas in order to make decisions and develop approaches to action. In a

social-democratic context, we must be able to justify our own decisions and negotiate collective approaches to action democratically (ibid.; Eikel, 2006).

The following sub-goals can be formulated: The pupils ...

- are able to identify and describe social decision-making dilemmas in real-life contexts,
- describe ways of dealing with decision-making problems where different perceptions of the problem and/or competing sustainable development goals exist,
- develop strategies for sustainable action based on jointly implemented, transparent consideration processes,
- are capable of positioning themselves personally on a dilemma and reflecting on the arguments, attitudes and emotions that influence their decision,
- practice their discussion skills and come to a decision in co-operative exchange processes.

Motivation skills: being able to motivate yourself and others to take action

This skill is central, as the definition of shaping competence includes the dimension of the capacity to act, which in turn depends to a large extent on self-motivation and motivation from others. This is then largely determined by emotions: Motivation is positively influenced by hope for success and the prospect of positive feelings, as well as tolerance of ambiguity and trust (de Haan, 2008). These positive and empowering feelings are often absent in uncertain situations. This makes enabling pupils to reflect on their own emotions all the more important. The experience of self-efficacy is also linked to emotions and the capacity to act. Therefore, with regard to this sub-skill, the focus in this project is on the following goals:

The pupils ...

- experience self-efficacy in the development of action strategies,
- are able to describe and evaluate their personal way of dealing with dilemmas, uncertainties and open situations,
- describe their motivations for participating in democratic decision-making processes and sustainable action,
- describe their own and shared successful learning paths in the context of sustainability and show how these can be used for further learning.

In order to offer a viable study context for the learning objectives listed here, the following basic concepts were chosen as the foundation of the didactic model.

Basic concepts:
Konstanz Method of Dilemma Discussion (KMDD) and Values and Knowledge Education (VaKE)

Konstanz Method of Dilemma Discussion (KMDD)

KMDD is a method from the field of moral and democratic psychology and is used to discuss ethical dilemmas. The aim is to enable learners to reflect on, discuss and deal with conflicts on the basis of universal moral principles (Lind, 2019a; Lind, 2019b). The aim is to develop the ability

to act by actively engaging with courses of action and their underlying moral values based on concrete situations.[1]

The teacher's role is to create stimulating opportunities for learning and to be on hand to offer advice during the process (Lind, 2019; Schirrmacher, 2012). „Therefore, rather than providing them with model solutions for every conceivable case, which, in this day and age, would be a hopeless endeavour, the aim is to develop a mindset regarding action that enables the learner, either independently or in collaboration with others, to find the fairest and most sustainable solution possible in a specific problem situation" (Lind, 2006, p. 12, *translated citation*). KMDD is thus based on a constructivist morally didactic approach. Through confrontation with a task that is appropriate to the learner's developmental level and provides the right level of challenge, it stimulates the activation of mental processes that are necessary for dealing with moral conflicts (ibid.). In the Konstanz method, this task is an educational moral dilemma. A dilemma that it is semi-real, i.e. concerns a fictitious person, but can still arouse the readers' emotions, should be chosen. The processing of the dilemma follows a formula whose core elements are a spontaneous first vote, a subsequent discussion and, after the discussion, a second vote. This formula constitutes the basic structure of the following teaching and study materials (Part 2 of the manual).

Values and Knowledge Education (VaKE)

The second underlying concept is the values and knowledge education approach by Weyringer and Patry (2005). In this approach, knowledge content is addressed in combination with the reflection of value systems. They justify the relevance of their approach by arguing that knowledge alone cannot prepare learners to actively take on responsibility in society, rather this knowledge must be considered in a reflective, critical manner. The acquisition of knowledge must therefore be closely linked to a culture of debate, the ability to form opinions and participation (ibid.).

The method is based on constructivist principles in both the area of value education and the perspective of knowledge acquisition. Thus, study is seen as an active constructive process, not as a passive absorption of information. The quality and effectiveness of the learning process is closely linked to the degree to which the content is of personal significance to the learner; the question „What am I learning for?" is therefore crucial (Keast & Marangio, 2015). The VaKE approach also takes up the idea that learning must be designed as an interactive process in order to enable reflection on the applicability and real meaning of what has been learned in dialogue. The teacher's role is to create situations that stimulate cognitive engagement with problems and to support learners in their learning process (Weyringer & Patry, 2005). As an important element in the process, Weyringer and Patry cite the joint creation of rules for dialogue and discussion, which are based on the principle of „companionship – not rivalry."

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[1] KMDD was conceptualised by Georg Lind based on Lawrence Kohlberg's insights into moral development. The method can be understood with the help of Kohlberg's definition of moral judgement as „the ability to make decisions and judgements that are moral, i.e. based on inner principles, and to act in accordance with these judgements" (Kohlberg, 1964, p. 103, *translated citation*). Moral competence is therefore „a key competence for living together in a democratic society" (Lind, 2019b, p. 108, *translated citation*).

This element is outlined at the beginning of the first block of each topic titled „Dialogue rules." Based on this, pupils can compile relevant information, weigh up arguments, reflect critically and, if necessary, revise their own opinion.

Didactic model and sequence of the study units

How can the model be used, how is it organised and how are the materials structured? As the material can be used flexibly, there are many ways in which it can be implemented. For example, it can be realised in a single project week, over the course of four double lessons in a related subject, in an extracurricular project or in another setting. Each study unit is divided into four 90-minute blocks. Within a defined framework, the pupils are given the opportunity to engage with the respective topic independently, following their personal interests and setting their own priorities. The content-related and self-reflective examination of the problems addressed constitute the core elements of the model. A dilemma situation is described within the context of an everyday scenario from the respective subject area. The pupils then deal with the dilemma situation. The aim is to develop an independent attitude with regard to possible courses of action in complex situations. This is done by looking at the dilemma more closely. In four blocks, individual positions are taken, in-depth research is carried out and arguments are discussed. By alternating between emotion and cognition, engagement with the situation is deepened and condensed (Fig. 1). The aim is always to develop the capacity to act in complex situations.

The materials consist of introductions, information sheets and worksheets (Fig. 2). For you as a teacher or instructor, the **introductions** are the core element of the material. They serve as a point of entry to familiarise yourself with the study units and offer suggestions on how the individual blocks can be structured.

The **information sheets** mainly serve as a source of information on various aspects of the material or topic. They provide an insight into background information and include visualisations to illustrate complex interrelationships or different positions. The individual blocks also comprise games and discussion rounds. These are described in greater detail in the information sheets with suggestions for game and method instructions. The information sheets also provide support for the discussion rounds in the form of scripts.

As a side note for you: The information sheets can be shared with pupils in some cases.

Notes are provided in the introduction in such cases.

The worksheets, in turn, are aimed at the pupils. They help pupils explore and consolidate their positions. They also help them to reflect on their own emotions and record the knowledge they have acquired. Worksheets that encourage action, such as instructions on how to make palm oil-free cosmetics, are also provided.

Depending on the time available and the desired depth of content and methodology, optional materials and methods can be incorporated or existing materials omitted when preparing the teaching units, which will increase or reduce the length of time required. Using the units in a flexible manner and/or with extensions is recommended, as the model enables learning in a variety of group compositions and dynamics.
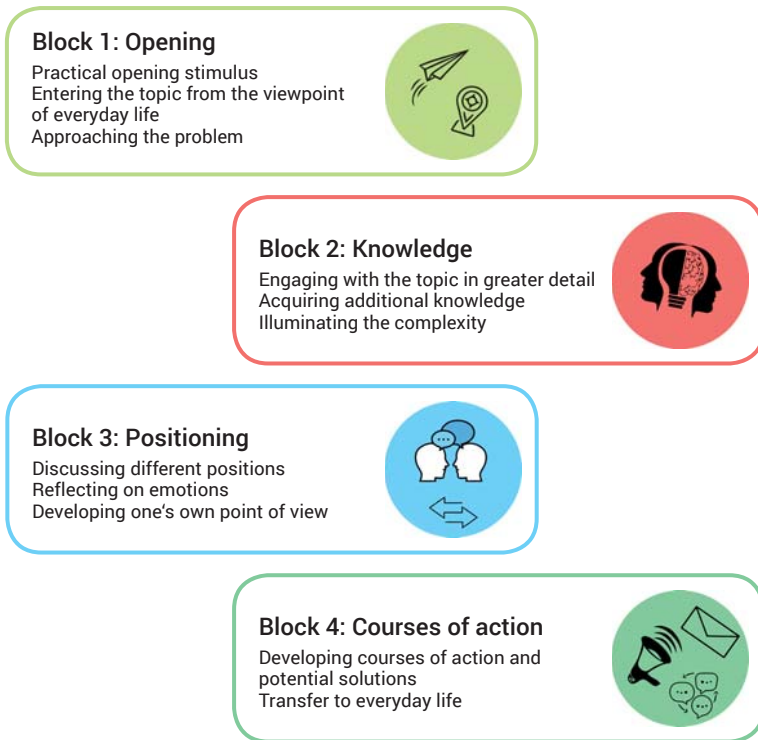
Block 1: Opening

Practical opening stimulus
Entering the topic from the viewpoint of everyday life
Approaching the problem

Block 2: Knowledge

Engaging with the topic in greater detail
Acquiring additional knowledge
Illuminating the complexity

Block 3: Positioning

Discussing different positions
Reflecting on emotions
Developing one's own point of view

Block 4: Courses of action

Developing courses of action and potential solutions
Transfer to everyday life

Fig. 1 *The teaching model at a glance: This shows the sequence of the individual teaching units with the focal points of introducing the topic, research phase, positioning phase, development of courses of action. The topics are organised based on this model and are similar in structure, although the block sequence is structured differently in some cases.*
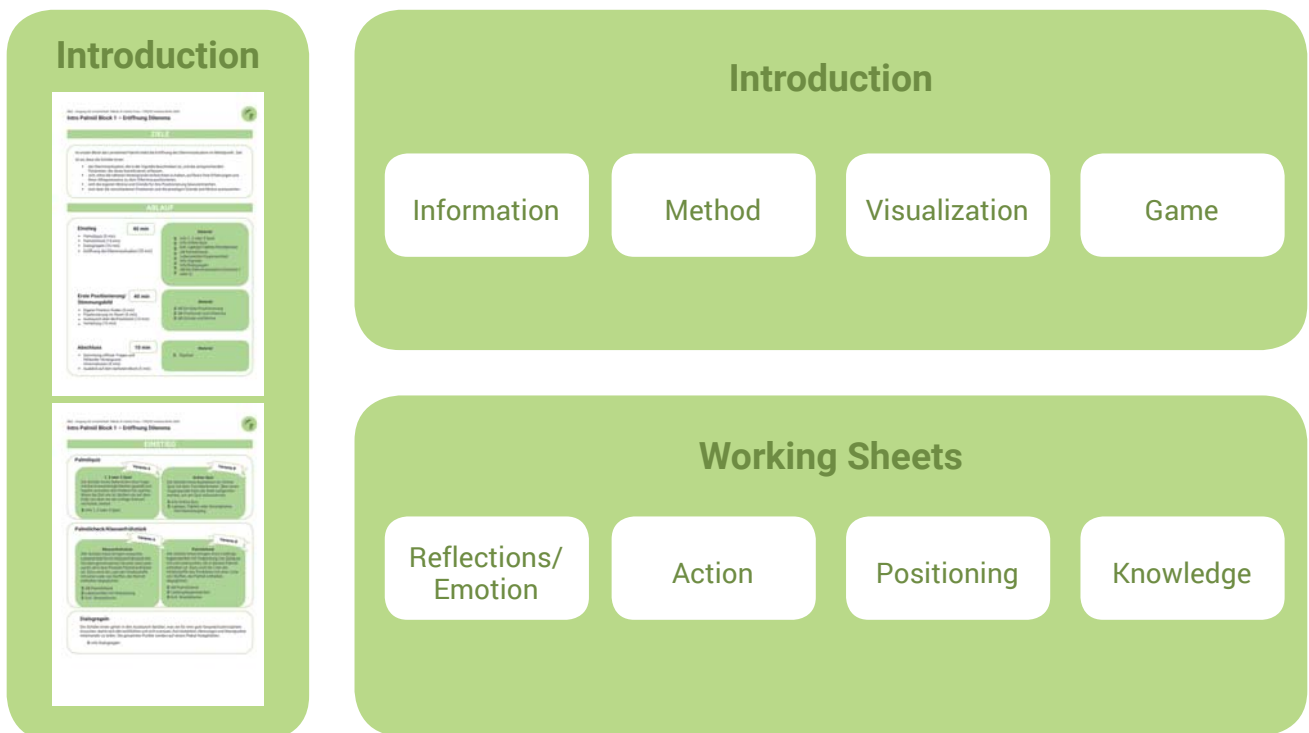
Introduction

Introduction

| Information | Method | Visualization | Game |

Working Sheets

| Reflections/Emotion | Action | Positioning | Knowledge |

Fig. 2. *The materials at a glance: As can be seen, the material is divided into introductions, information sheets, worksheets and their content components.*

The teacher's role

This model is primarily concerned with providing children and young people with a space to explore their own options in the context of uncertainties and contradictions in sustainable development. De Haan (2008) describes ESD as being essentially an educational component that is orientated towards the ideas of inter- and intra-generational education. The intention of ESD is not to evaluate individual positions or to normatively redirect behaviours towards a type of behaviour which is supposedly „better" or more sustainable. We would like to emphasise that this model is not intended to impose certain normative, sustainable value judgements on pupils. Rather, it is intended to open up a space to enable all those involved in the process to engage with their own options, value judgements and emotions as well as other perspectives in relation to sustainable development.

This opens up the option of transformative learning (Mezirow, 2012). The transformational character arises from the fact that our own views, value judgements and emotions are opened up to critical reflection. Such learning processes are not commonplace, as we usually strive to maintain our own frames of reference, which make the world comprehensible and manageable for us and provide a sense of continuity (Mälkki & Green, 2018; Singer-Brodowski et al., 2022).

However, perspectives are being increasingly challenged due to the complexity of crises, dilemmas and uncertainties in sustainable development, and it is becoming clear that many established habits are unsuitable for making a constructive contribution to current problems. When our views and interpretations of the world become exasperated, this can have a destabilising effect and this state is inevitably associated with emotions – usually with unpleasant emotions
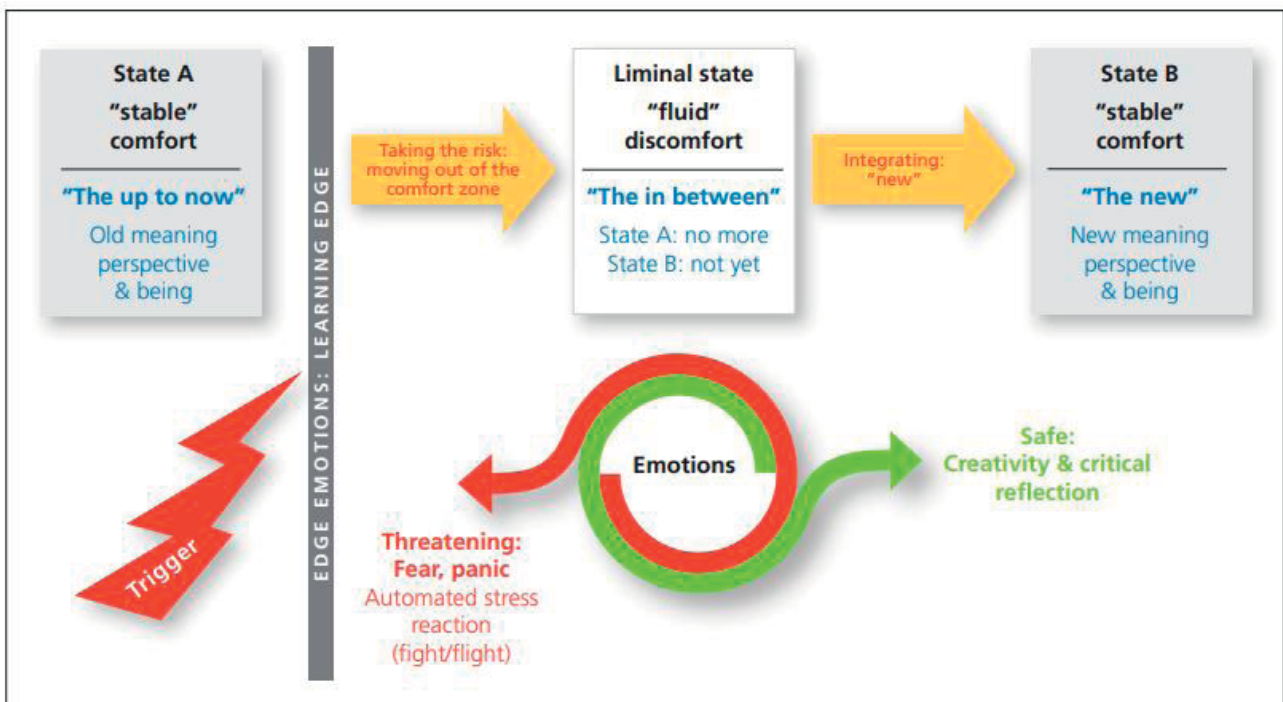

Fig. 3: *Loss of comfort zones and state of „fluid discomfort" (taken from: Förster, R. et al., 2019. Transformative teaching in Higher Education for Sustainable Development: facing the challenges. GAIA- Ecological Perspectives for Science and Society, 28(3), 324-326. http://dx.doi.org/10.14512/gaia.28.3.18)*

first, which Mälkki (2019) refers to as edge emotions: Edge emotions act as „threshold indicators" that show us a state of uncertainty. They indicate that we are moving outside of our comfort zone.

In order to maintain safety and stability in our interpretations of the world, unpleasant emotions that challenge us to go outside of our own comfort zones tend to stimulate us to revert to our former frames of reference as a point of orientation. For instance, we use familiar explanations to categorise events, or we discredit others so as to keep our interpretation of the world stable. If the unpleasant emotions and associated behaviours are not reflected upon, they can have a very conservative effect in order to protect our world views (Mälkki, 2019; Waldow-Meier, 2022).

In engaging with dilemmas, we can also find ourselves in a state of fluid discomfort, as we become aware that old ways of looking at things seem unsuitable for solving problems, but that new ideas and behaviours may not yet be within our grasp, or that we have some at hand, whose disadvantages we cannot overlook. The topics and problems that are dealt with in this project are characterised, in particular, by the fact that no clear-cut solutions, no clear-cut right or wrong exist. Therefore, pupils and teachers alike are confronted with uncertainty. If this uncertainty can be tolerated for a while in order to turn to and reflect on the emotions and recognise the imperfections of one's own perspectives as a valuable learning moment, the opportunity to develop new perspectives arises. Transformative Learning processes require the courage to question previous ways of thinking and approaches and to seek new perspectives through dialogue. As a teacher, you are called upon to create a culture of dialogue that allows pupils to recognise imperfections in their own perspectives (Mälkki & Green, 2016). This requires critical reflection that examines previous assumptions. The appropriate mode of carrying out this examination is through an appreciative dialogue (Mezirow, 2012), which enables critical thinking and the questioning of routines and perspectives as well as the adopting of perspectives, empathy and respect for others.

As a basis for this, we recommend starting by collectively agreeing on dialogue rules, which support appreciative listening and pave the way for further constructive collaboration (see the Dialogue rules worksheet).

With this in mind, you and the pupils are invited to familiarise yourselves with your own emotions in relation to the complex problems and dilemmas of sustainable development as part of the project. Elements that support the observation of one's own emotions are integrated into each topic block. The observations can and should be made explicit to varying degrees: It can be useful for pupils to make a note of their own observations to protect their privacy. Dialogue and exchange in teams of two can be a suitable mode, as well as group discussions in which observations can be shared if sufficient mutual trust exists. Pupils are free to choose the extent to which they share self-observations in the group. Opportunities for emotional reflection can be created by visualising emotions, e.g. using emotion monster cards. For additional free suggestions of ways to customise the way in which study processes are shaped, see: https://www.umweltbundesamt.de/ sites/default/files/medien/1410/ publikationen/anlage12_methode_fuer_die_reflexionsphase_2_ reflexion_eigener_gefuehle_und_ gedanken.pdf

Sustainable development is inconceivable without the inclusion of emotions – on the one hand they are obstacles, making decisions and changes more difficult, on the other hand, they are motivators, propel us forward, promote ideas in individuals and processes in society as a whole.

Therefore, giving space to paralysing or inhibiting emotions is an important part of the model. This is not in order to fuel them, but to find a way of dealing with them that promotes action. Throughout the study units, critical hope and trust should be encouraged and the ability to tolerate ambiguity developed. In addition, the aforementioned resilience factors should be strengthened, and self-efficacy experiences should be enabled in order to lay an important foundation for pupils to competently deal with dilemma situations and uncertainties of sustainable development.

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Appendix Quality declaration for digital ESD material

This educational material takes account of the quality criteria for digital ESD materials in accordance with the resolution of the National ESD Platform dated 9 December 2022. Source: ESD Portal

Criteria			Fulfilment
	Yes	No	Not applicable / Comment
1. Contents			
1.1 Sustainable development	✓		
1.2 Accuracy and timeliness	✓		Block 3 provides examples of research paths and reputable sources of information that were available at the time of publication. No liability can be accepted for the content and continuity of the links.
1.3 Formation of judgement	✓		
1.4 Heterogeneity	✓		
1.5 Transparency	✓		In the methodological variants, we suggest the use of Mentimeter and emotional monster cards, among other things. These free suggestions and ideas are aimed at teachers in preparation for the study units.
2. Methodology			
2.1 Controversy and multiplicity of perspectives	✓		
2.2 Target group and lifeworld orientation	✓		
2.3 Competence orientation	✓		Particularly fulfilled in the topic of fake news
2.4 Action orientation	✓		
2.5 Participation	✓		Although digitally accessible, the material is primarily designed for group learning processes and interaction in real-life interactions. It is not yet available in easy language.
2.6 Cooperative, creativity-promoting methods	✓		
3. Formal design			
3.1 Data protection and data security	✓		
3.2 Copyright	✓		
3.3 Accessibility	✓		
3.4 User-friendly design	✓		
3.5 Interconnectivity		✓	Although digitally accessible, the material is primarily designed for group learning processes and interaction in real-life interactions..

DEVELOPING SKILLS IN DEALING WITH UNCERTAINTY

Material package on the topic
Palm Oil

TABLE OF CONTENTS

Entry

Block 1

Block 2

Block 3

Block 4

WHAT IT'S ALL ABOUT ...

Sustainability issues are associated with multi-layered problems, complex interrelationships and a wealth of information. This makes it difficult to reach decisions and take action at personal and societal levels. There is often no clear right or wrong, it is rather a matter of weighing up the options and developing one's own position. This can lead to uncertainty and overwhelm, which hinder motivated, goal-orientated action.

This is where the project comes in. It aims to support pupils in being able to act even in the face of complexity and uncertainty. This addresses important aspects of organisational competence that have been given little attention in ESD to date. Therefore, in 2021 the project titled "Education for Sustainable Development: Learning to manage dilemmas, risks, and trade-offs" saw the launch, funded by the German Federal Environmental Foundation and realised by Institut Futur and the Fields Institute in cooperation with the German Society for Environmental Education. The project centres on the development of learning materials for stage 1 secondary schools (age 10-16) that enable pupils to engage with dilemmas relating to (un)sustainable development in the context of biodiversity.

OVEREXPLOITATION SYNDROME USING THE EXAMPLE OF PALM OIL

Palm oil is obtained from the fruit of the oil palm and, thanks to its high yield, is the most widely used vegetable oil in the world. It has a range of uses, including in the production of food, cosmetics, biofuels and animal feed. However, there are many problems associated with palm oil production. Rainforests are cut down, entire ecosystems are damaged, harmful gases are released into the atmosphere and human rights are disregarded.

So why is palm oil so attractive to industry despite these circumstances? One of the reasons is its efficiency. Palm oil is an important, inexpensive and useful raw material to which few alternatives currently exist. Dilemmas arise not only at global level. We are also faced with difficult decisions regarding palm oil in our everyday lives. What can we do about it? Is it enough to look out for organic labels? What are the options for those who cannot afford organic products from the supermarket?

The pupils research and discuss the advantages and disadvantages of palm oil in order to obtain information, develop their own point of view and deal with the resulting dilemmas. The pupils' values and feelings also play a central role here.

THE CONCEPT

Each study unit is divided into four 90-minute blocks. Within a defined framework, the pupils are given the opportunity to engage with the subject of palm oil independently, following their personal interests and setting their own priorities.

The aim is to develop an independent attitude with regard to possible courses of action in complex situations. This is done by looking at the dilemma more closely. Individual positions are adopted, in-depth research is carried out and arguments are discussed. By alternating between emotion and cognition, their engagement with the subject is deepened and condensed. The aim is always to develop the ability to act in complex situations.

The study materials are available for schools to use free of charge. They can be used in lessons in subjects such as ethics, biology, geography and politics. In addition, the materials can also be used on project days or weeks and in open all-day working groups. In terms of the time to be allocated, at least four 90-minute blocks should be reserved. However, we recommend planning an additional block as a buffer in order to respond to the pupils' pace of work and working methods in a flexible manner and allocate more time as needed or delve more deeply into particular aspects.

Block 1: Opening
Practical opening stimulus
Entering the topic from the viewpoint of everyday life
Approaching the problem

Block 2: Knowledge
Engaging with the topic in greater detail
Acquiring additional knowledge
Illuminating the complexity

Block 3: Positioning
Discussing different positions
Reflecting on emotions
Developing one's own point of view

Block 4: Courses of action
Developing courses of action and potential solutions
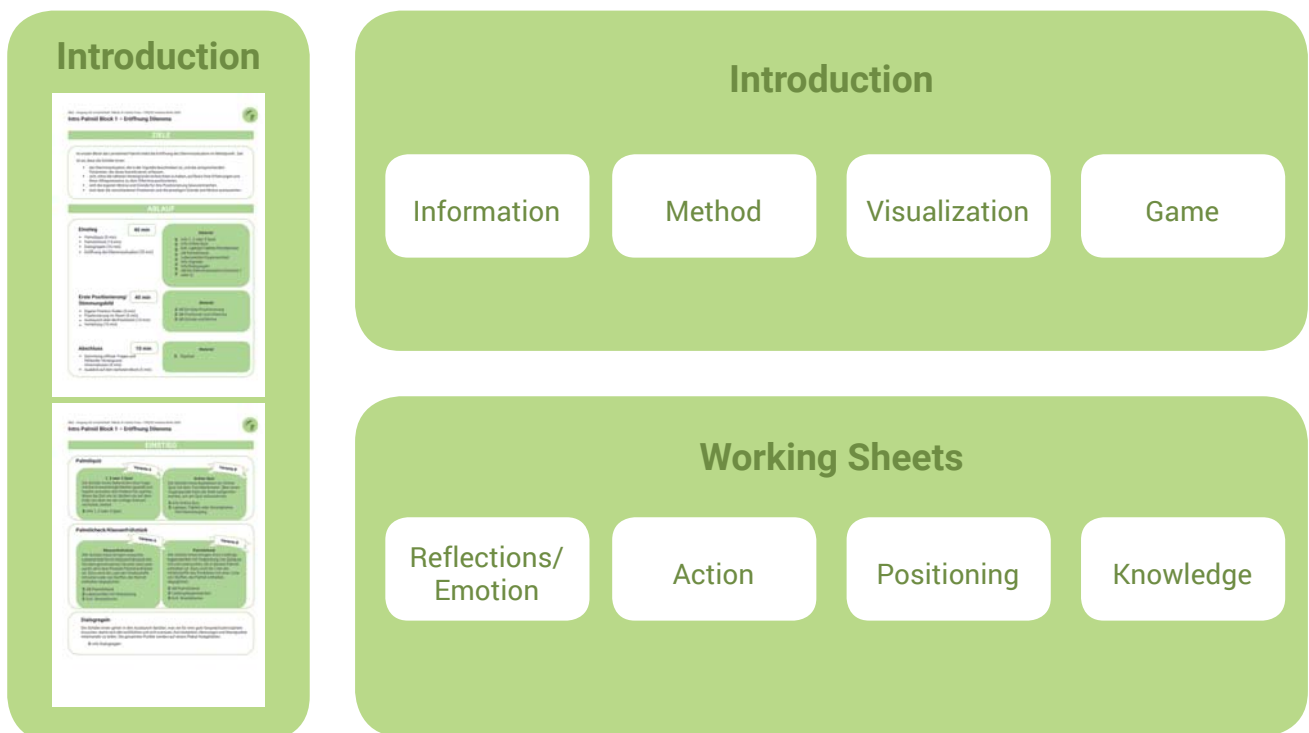Transfer to everyday life

USE OF MATERIALS

The introductions are the central element of the material and are used as an entry point to familiarise pupils with the study units. They offer suggestions and instructions on how the individual blocks can be organised.

The **information sheets** mainly serve as a source of information on various aspects of the material or topic. They provide an insight into background information on the topic of palm oil. Visualisations are provided in order to illustrate complex interrelationships or different positions. The individual blocks also comprise games and discussion rounds. These are explained in more detail on the information sheets by means of instructions for the games and methods.

As a side note for you: The information sheets can be shared with students in some cases. Notes are provided in the introduction in such cases.

The **worksheets**, in turn, are aimed at the pupils. They help pupils explore and consolidate their positions. They also help them to reflect on their own emotions and record the knowledge they have acquired in order to prepare for the discussion, for example. There are also worksheets that show various courses of action.

Introduction

Introduction

| Information | Method | Visualization | Game |

Working Sheets

| Reflections/Emotion | Action | Positioning | Knowledge |

Palm Oil
Block 1 – Opening Dilemma
Introduction

Introduction to Block 1 – Opening Dilemma

GOALS

The first block of the Palm Oil study unit focuses on opening up the dilemma situation.

The aim is that the pupils

- grasp the dilemma situation described in the vignette and the corresponding constituent parameters,
- adopt a position on the dilemma based on their experiences and everyday knowledge without having researched the background in detail,
- become aware of their own motives and reasons for their positioning,
- exchange views on the various positions and the respective reasons and motives behind them.

SEQUENCE

Entry   40 min

- Palm oil quiz (5 min.)
- Palm oil check (15 min.)
- Dialogue rules (10 min.)
- Opening the dilemma situation (10 min.)

Material

- ➲ Info: 1, 2 or 3 game
- ➲ Info: Online quiz
- ➲ Evtl. Laptops/Tablets/Smartphones
- ➲ WS: Palm oil check
- ➲ Info: Food/hygiene products Vignette
- ➲ Info: Dialogue rules
- ➲ WS: The dilemma situation (Variant 1 or 2)

First positioning/ Mood   40 min

- Finding your own position (5 min.)
- Positioning in the room (5 min.)
- Exchange about the positions (15 min.)
- Going deeper (15 min.)

Material

- ➲ WS: Single-sentence positioning
- ➲ WS: Positions on the dilemma

Conclusion   10 min

- Gathering open questions and missing background information (5 min.)
- Looking ahead to the next block (5 min.)

Material

- ➲ Flipchart

Introduction to Block 1 – Opening Dilemma

ENTRY

Palm oil

Variant A

1, 2 or 3 game

The pupils are asked a question with three possible answers and hop back and forth between three squares. When the time is up, they stop on the square where they think the correct answer is.

➲ Info: 1, 2 or 3 game

Variant B

Online quiz

The pupils complete an online quiz using the Mentimeter tool. In order to take part in the quiz, the page can be accessed via an access code.

➲ Info: Online quiz
➲ Laptops, tablets or smartphones with internet access

Palm oil check/class breakfast

Variant A

Palm oil check

All pupils bring in their favourite hygiene product with its packaging and investigate whether it contains palm oil. This is done by comparing the product ingredients with a list of substances that contain palm oi.

➲ WS: Palm oil check
➲ Favourite hygiene products
➲ Smartphones (if applicable)

Variant B

Class breakfast

A class breakfast is held, and all pupils bring along packaged food. Before eating, they check whether the product contains palm oil. This is done by comparing the ingredients with a list of substances that contain palm oil.

➲ IWS: Palm oil check
➲ Packaged food
➲ Smartphones (if applicable)

Dialogue rules

The pupils discuss what they need for a good discussion atmosphere so that everyone feels comfortable and confident sharing their thoughts, opinions and points of view. The points mentioned are noted on a poster.

➲ Info: Dialogue rules

Introduction to Block 1 – Opening Dilemma

Opening the dilemma situation

Vignette: The vignette is read out or told.

➲ Info: Vignette

Clarifying the dilemma situation

The difficulty of the situation and the reasons behind this difficulty are compiled in small groups or in a class discussion. This can be done by either discussing the questions on the worksheets directly in the small group/class or answering them in writing first before returning to the group. Thus, only the first or second page of WS: The dilemma situation is required.

➲ WS: The dilemma situation (Variant 1 or 2)

FIRST POSITIONING/MOOD

Finding your own position

The pupils consider what they would do if they were in the situation and write a sentence about it on the template.

Key question: If I were in this situation, what would I decide on the spur of the moment?

➲ WS: Single-sentence positioning

Positioning in the room

The pupils place their single-sentence positions on the floor anywhere in the room and walk around the room to look at the other positions. The various positions are then grouped together and placed around the room, ensuring that they are well spread out.

Note: The instances of single-sentence positioning should be retained. They will be needed for the second positioning in the third block for comparison purposes.

Exchange about the positions

The pupils discuss the reasons and motives for their various positions in a moderated discussion

Key questions

- Why would I make this decision?
- What reasons are important to me here?
- How easy or difficult was it for me to make the decision and why?

Introduction to Block 1 – Opening Dilemma

Going deeper

Variant A

Clustering the positions

Working in pairs or small groups, the pupils find generic terms for the various positions. The findings are then presented in the plenary.

➲ WS: Positions on the dilemma

Variant B

Reasons and motives behind the positions

Working in pairs or small groups, the pupils identify what motives might have led to the decision in five positions. The findings are then presented in the plenary.

➲ WS: Reasons and motives

CONCLUSION

Research guide

Open questions and missing background information for a decision are gathered and noted so that they can be used as a basis for research in the next block.

➲ Flipchart

Note: The instances of single-sentence positioning should be retained. They will be needed for the second positioning in the third block for comparison purposes.

Looking ahead to the second block

The sequence for the next unit is looked over.

Palm Oil
Block 1 – Opening Dilemma
Information Sheets

Block 1 – Info: 1, 2 or 3 Game Instructions

The idea behind the game

Start by laying out three squares – each of which is large enough to fit several pupils. The leader of the game asks a question and presents the three possible answers. To answer, the children jump to the corresponding number (1, 2 or 3) on the floor. To make it even more exciting and to prevent the answer from being revealed straight away, all the children jump back and forth between the squares until the leader of the game shouts „1, 2 or 3, last chance... Time is up!". The answer is only valid once „Time is up" has been called out and they cannot move to a different square anymore.

Preparation

- Place the number signs on the floor, ensuring they are well spread out.

Material

➲ Questionnaire Number signs

Block 1 – Info: 1, 2 or 3 Game Instructions

Quiz questions (easy)

What is the most widely used oil in the world?
1. Rapeseed oil
2. **Palm oil**
3. Soya oil

What are some of the locations where palm oil is grown?
1. **Indonesia**
2. Morocco
3. China

Which foods contain palm oil?
1. Cream cheese
2. **Nutella**
3. Milk

Which product is palm oil used to produce?
1. **Cosmetics**
2. Paper
3. Clothing

How much land is currently being used to grow palm oil?
1. Approx. 1 million football pitches
2. Approx. 10 million football pitches
3. **Approx. 20 million football pitches**

Which of its attributes makes palm oil so popular in food production?
1. **Very long shelf life**
2. Protects against certain diseases
3. Specific colour that is often used to colour foodstuff

How can you find out whether a food contains palm oil?
1. There is no way of knowing.
2. **It must be included on the list of ingredients**
3. You have to ask the manufacturer

How is palm oil usually grown?
1. Oil palms are grown in large greenhouses
2. **Oil palms are grown as the only species in the same area for several years**
3. Oil palms grow in the forest alongside many other trees

What is one of the reasons why palm oil is often cultivated?
1. Its cultivation has a positive effect on the climate
2. The oil has a healing effect
3. **The palm plant has a very high yield on small cultivation areas**

Block 1 – Info: 1, 2 or 3 Game Instructions

Quiz questions (difficult)

What is the most widely used oil in the world?
1. Rapeseed oil
2. **Palm oil**
3. Soya oil

What are some of the locations where palm oil is grown?
1. **Indonesia**
2. Morocco
3. China

Which foods contain palm oil?
1. Pesto
2. **Chocolate**
3. Sardines in oil

Which product is palm oil used to produce?
1. **Biodiesel**
2. Rubber tyres
3. Oil paints

How much land is currently being used to grow palm oil?
1. Approx. 1 million football pitches
2. Approx. 10 million football pitches
3. **Approx. 20 million football pitches**

Which of its attributes makes palm oil so popular in food production?
1. **Very long shelf life**
2. Special flavour
3. Specific colour that is often used to colour foodstuffs

How can you find out whether a food contains palm oil?
1. There is no way of knowing.
2. **It must be included on the list of ingredients**
3. You have to ask the manufacturer

How is palm oil usually grown?
1. Oil palms are grown in large greenhouses
2. **Oil palms are grown as the only species in the same area for several years**
3. Oil palms grow in the forest alongside many other trees

What is one of the reasons why palm oil is often cultivated?
1. Its cultivation has a positive effect on the climate because the palm plant converts a particularly high quantity of CO_2
2. Compared to other oils, palm oil is very easy to digest
3. **The palm plant has a very high yield on small cultivation areas**

Block 1 – Info: 1, 2 or 3 Game Instructions

1

Block 1 – Info: 1, 2 or 3 Game Instructions

2

Block 1 – Info: 1, 2 or 3 Game Instructions

3

Block 1 – Info: Online Quiz

Mentimeter

Mentimeter is an interactive presentation tool that can be used for voting, asking questions and to visualise mind maps easily. In this instance, it will be used for an online quiz. Templates for the quiz questions are provided at the bottom of this document.

Handling:
- Mentimeter is free of charge.
- To use it, all you have to do is create an account.

Data protection:
- Personal data is collected – from viewers who provide their email address as well as from participants and hosts.
- The EU General Data Protection Regulation applies

Creating an account

1. To create an account, go to
   https://www.mentimeter.com
   and click the "Sign Up" button
   at the top right.
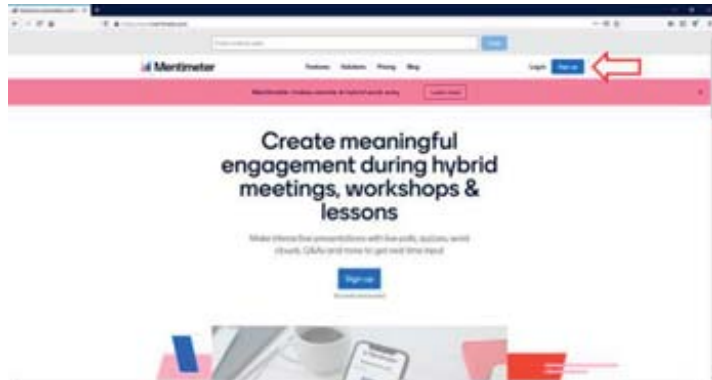
2. Register by entering
   a name and choose a secure password.
   Then click the blue
   "Sign up" button below.
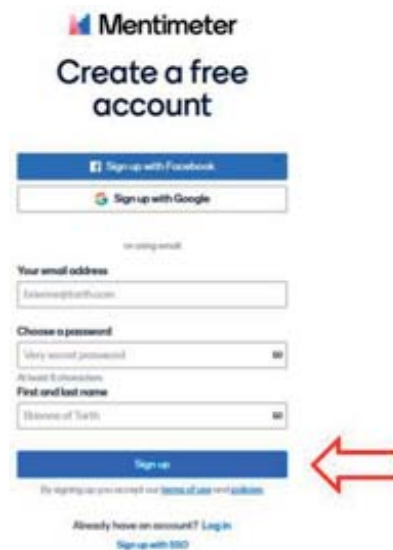
Block 1 – Info: Online Quiz

3. Mentimeter now asks you what is your intended purpose for using this tool. Select a suitable answer and click "Save selection".

4. Mentimeter now asks you why you want to work with Mentimeter. Here too, select a suitable answer and click "Save selection".

Block 1 – Info: Online Quiz

Creating a quiz

1. In the Mentimeter menu, click the
   "+ New presentation" button.

2. A blank Mentimeter template opens.
   An overview of the various application
   types can be displayed under the
   "Types" tab on the right-hand side.
   Select Multiple Choice.

3. You will now be taken to the next tab:
   "Content". Enter the questions and
   possible answers here.

Block 1 – Info: Online Quiz

4. To send the pupils the survey, click "Share" in the top right-hand corner. Another window containing the link to participate and the QR code for mobile access via camera will open. If you want to end the survey, click "Close"
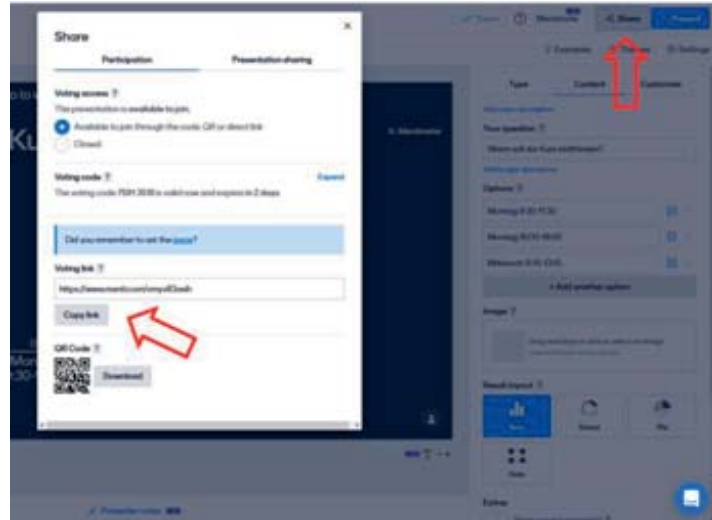
5. This is what the survey looks like to the participants. They have to select an answer and click "Submit" to send in their selection.

6. Finally, you can present the survey findings to the pupils. For a full-screen view, click the blue "Present" button at the top right.

Block 1 – Info: Online Quiz

Quiz questions (easy)

What is the most widely used oil in the world?
1. Rapeseed oil
2. **Palm oil**
3. Soya oil

What are some of the locations where palm oil is grown?
1. **Indonesia**
2. Morocco
3. Serbia

Which foods contain palm oil?
1. Cream cheese
2. **Nutella**
3. Milk

Which product is palm oil used to produce?
1. **Cosmetics**
2. Paper
3. Clothing

How much land is currently being used to grow palm oil?
1. Approx. 1 million football pitches
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3. **Approx. 20 million football pitches**

Which of its attributes makes palm oil so popular in food production?
1. **Very long shelf life**
2. Protects against certain diseases
3. Specific colour that is often used to colour foodstuff

How can you find out whether a food contains palm oil?
1. There is no way of knowing.
2. **It must be included on the list of ingredients**
3. You have to ask the manufacturer

What impact does the clearing of rainforests have?
1. **Many rare animal species lose their habitats**
2. Deep holes are created in the earth through which lava rises to the earth's surface
3. Plagues of locusts can occur

How is palm oil usually grown?
1. Oil palms are grown in large greenhouses
2. **Oil palms are grown as the only species in the same area for several years**
3. Oil palms grow in the forest alongside many other trees

What is one of the reasons why palm oil is often cultivated?
1. Its cultivation has a positive effect on the climate
2. The oil has a healing effect
3. **The palm plant has a very high yield on small cultivation areas**

Block 1 – Info: Online Quiz

Quiz questions (difficult)

What is the most widely used oil in the world?
1. Rapeseed oil
2. **Palm oil**
3. Soya oil

What are some of the locations where palm oil is grown?
1. **Indonesia**
2. Morocco
3. China

Which foods contain palm oil?
1. Pesto
2. **Chocolate**
3. Sardines in oil

Which product is palm oil used to produce?
1. **Biodiesel**
2. Rubber tyres
3. Oil paints

How much land is currently being used to grow palm oil?
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What is one of the reasons why palm oil is often cultivated?
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2. Compared to other oils, palm oil is very easy to digest
3. **The palm plant has a very high yield on small cultivation areas**

Block 1 – Info: Palm Oil Vignette

Paul watched a documentary on species conservation and found out that rainforest is being cut down in order to cultivate the plants used to produce palm oil. This threatens the habitat of many rare species, but it also creates jobs.

Palm oil is often used in frozen pizza and in many other products that we use on a daily basis, such as shampoo. When Paul takes a closer look at his shampoo, he discovers that it contains palm oil too.

The next time he goes shopping, he can only find one shampoo that is free from palm oil. It is almost twice as expensive as the other shampoos. If he buys the expensive shampoo, he won't be able to afford the deodorant he also wanted to buy. What should he do?

Block 1 – Info: Dialogue Rules

Contents:

Opening up and talking about personal thoughts and feelings takes time and courage. It is therefore important for the members of the group to discuss how they want to talk to each other beforehand. What do I want and what do the others want? This graphic shows what some possible needs might be.

How:

The teacher brings a pre-prepared poster showing a speech bubble to the first lesson. Before the pupils adopt a position, the pupils and teacher discuss what they want regarding dialogue rules for the project time and write their wishes on the poster. The poster is then hung on the wall, where it remains until the end of the project.

No argument is ridiculous or embarrassing.

We are active listeners and let other finish speaking.

We respect different points of view.

Everyone can decide what and how much they want to share.

The teacher does not know all the answers. We can find solutions together.

Emotions that we talk about stay in the group. We handle them confidentially and with care.

There are no right or wrong solutions.

Palm Oil
Block 1 – Opening Dilemma
Worksheets

Block 1 – Info: Palm Oil Check

Many foods and cosmetic products contain palm oil. However, it is sometimes not so easy to find this out. Food products are subject to a labelling requirement. Thus, palm oil has to be included in the list of ingredients. However, cosmetic products are not subject to any such labelling requirement. The following applies here: not everything that contains palm oil is labelled as containing palm oil. The proper names of chemical compounds containing palm oil, such as hydrogenated palm glyceride or sodium palmate, are often used instead.

Two examples of lists of ingredients on the reverse of the product are shown here. Both products contain palm oil: It is listed as palm oil on the nut nougat cream label. On the kitchen soap label, it is listed as ascrobyl palmitate, which is a chemical compound that contains palm oil.

Now it's your turn: Choose a few products and find out whether or not they contain palm oil. You can read the list of ingredients on the products and compare it with the list of chemical compounds of palm oil. Or you can download the "codecheck" app and scan the product barcodes. Enter your results in the table.

Source: Palmöl vermeiden: 25 heimtückische Bezeichnungen für Palmöl in Kosmetik und Lebensmitteln
[Avoid palm oil: 25 sneaky names for palm oil in cosmetics and food], utopia.de (online)
https://utopia.de/ratgeber/palmoel-vermeiden/ (accessed 10/11/2022)

Block 1 – Info: Palm Oil Check

Substances and ingredients made of palm oil	Product 1	Product 2	Product 3
Cetearyl alcohol			
Cetyl alcohol, Cetyl palmitate			
Elaeis guineensis (the botanical name for the oil palm)			
Ethyl palmitate, ethylhexyl palmitate or octyl palmitate			
Glyceryl (stearate), glycerol esters of fatty acids, fatty acid glyceride			
Lactyl lactic acid ester sodium salt/ sodium lauryl sulphate, magnesium stearate, sodium dodecyl poly (oxyethy-lene) sulphate, sodium lauryl sulphate			
Magnesium stearate			
Palmates (e.g. sodium palmate – sodium salts of palm oil fatty acids)			
Palmitates, palmitic acid, palm olein, palm stearin			
Palmitoyl oxostearamide, palmitoyl tetrapeptide-3, palmityl alcohol or 1-hexadecanol			
Polyglyceryl-2-caprate			
Palm oil, palm fat, palm fruit oil, vegetable fat, palm kernel, palm kernel oil			
Stearate, stearic acid, PEG-100 stearate			
Sodium cetearyl sulfate, Sodium kernelate, Sodium lauryl sulfoacetate, Sodium palm kernelate			
Steareth-20, Zinc stearate			

Source: Palmöl vermeiden: 25 heimtückische Bezeichnungen für Palmöl in Kosmetik und Lebensmitteln
[Avoid palm oil: 25 sneaky names for palm oil in cosmetics and food], utopia.de (online)
https://utopia.de/ratgeber/palmoel-vermeiden/ (accessed 10/11/2022)

What problem is Paul facing?

Which courses of action does he have to decide between?

Does he have any other options?

Block 1 – WS: The Dilemma Situation Variant 1

Take another look at the situation described above and answer the questions:

What problem is Paul facing?

_____

_____

_____

_____

_____

_____

Which courses of action does he have to decide between?

_____

_____

_____

_____

_____

_____

Does he have any other options?

_____

_____

_____

_____

_____

_____

What problem is Paul facing?

Which courses of action does he have to decide between?

What influence can Paul's actions exert?

What could he do as well or instead?

**When you put yourself in Paul's shoes, how do you feel?**

Block 1 – WS: The Dilemma Situation Variant 2

Take another look at the situation described above:

What problem is Paul facing?

_____

_____

_____

_____

Which courses of action does he have to decide between?

_____

_____

_____

_____

What influence can Paul's actions exert?

_____

_____

_____

_____

What could he do aswell or instead?

_____

_____

_____

_____

When you put yourself in Paul's shoes, how do you feel?

_____

_____

_____

Block 1 – WS: Single-sentence Positioning

Write a sentence stating what your decision would be if you were in this situation.

Block 1 – WS: Positions on the Dilemma

You have now heard different positions on how to deal with the situation. What are the different positions? Which are similar? Find a generic term for each of the similar positions. The aim is for us to recognise the different positions.
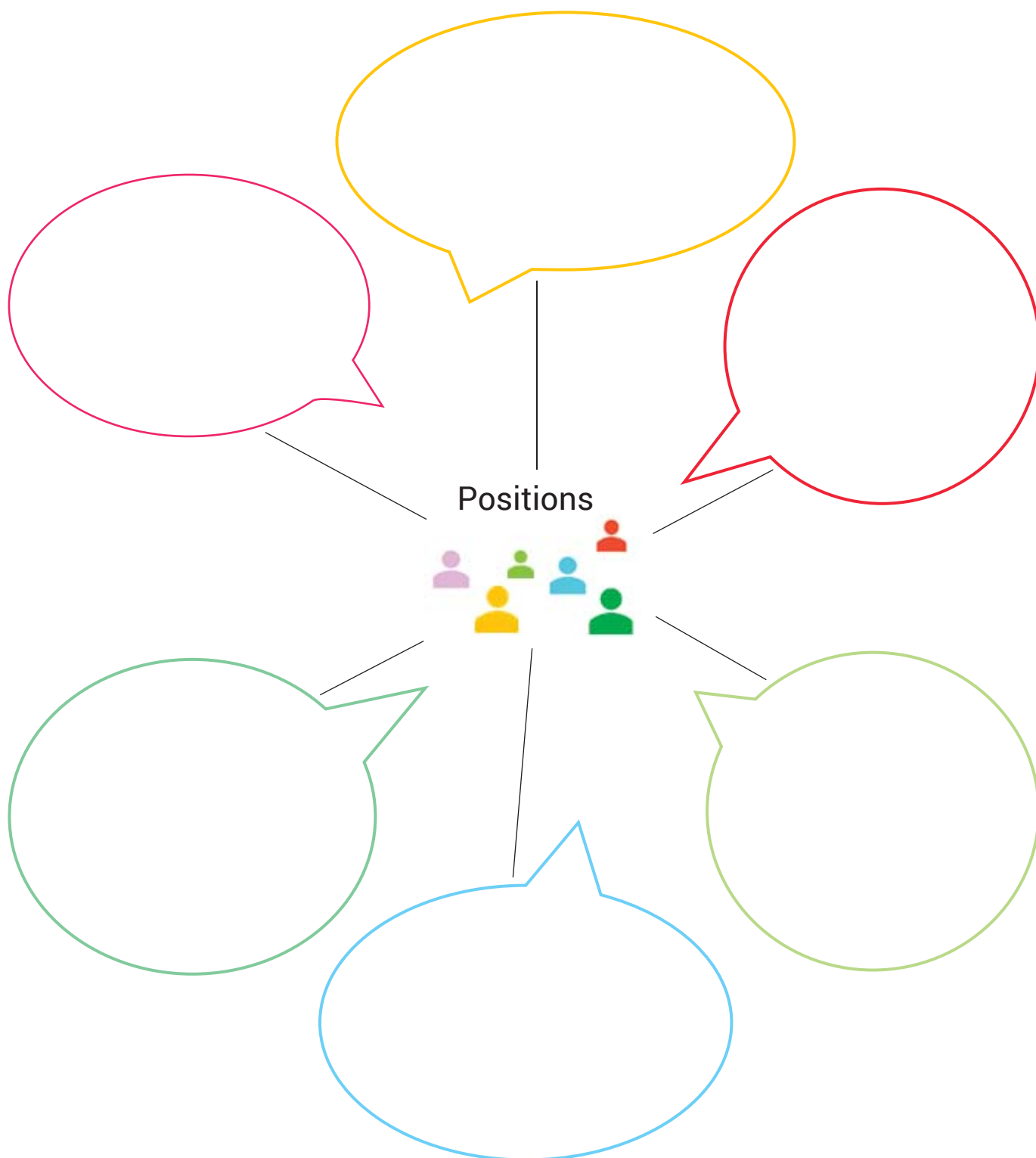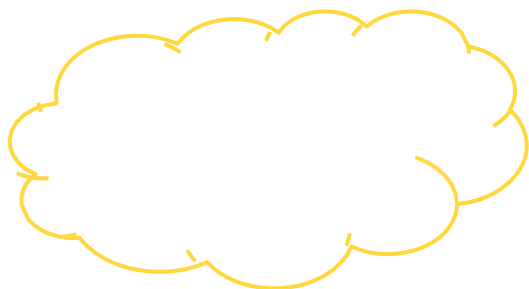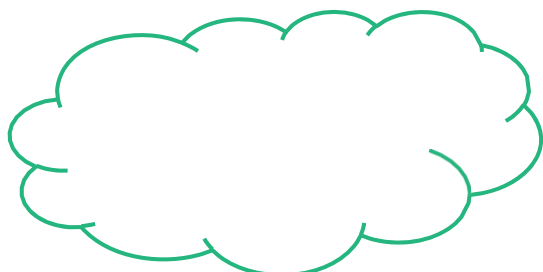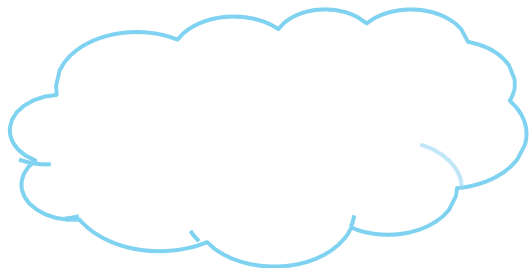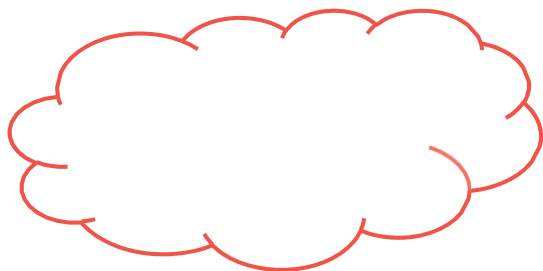
Positions

Block 1 – WS: Reasons and Motives

Now that the various positions have been compiled, it is time to look at the possible motives behind the different positions. Why might a person have decided in favour of a particular position?

Positions	**Possible motives**

Palm Oil
Block 2 – Knowledge
Introduction

Introduction to Block 2 – Knowledge

GOALS

The second block of the Palm Oil study unit focuses on acquiring new knowledge.

The aim is that the pupils

- independently identify relevant subject areas and research paths and use these to research additional information,
- weigh up and prioritise various arguments,
- recognise and name complex interrelationships and problematic situations

SEQUENCE

Entry　10 min

- Recapitulation of the last block (10 min.)

Material

➲ Info: Graphical representation of the positions
➲ Flipchart with questions from block 1
➲ Info: Dilemma at a glance

Research phase　70 min

Variant 1
- Free research (40 min.)
- In-depth research (30 min.)

Variant 2
- Free research (30 min.)
- Creating posters (40 min.)
- Looking ahead to the session

Material

➲ Laptops/tablets
➲ Info: Online article research paths
➲ Poster design material
➲ Info: Video/podcast research paths
➲ Info: Research tips
➲ WS: Advantages and disadvantages Info: Why method WS: Why method Moderation cards Posters, pens, newspapers

Conclusion　10 min

Variant 1
- Exchange about the research process (5 min.)
- Compiling the problem areas of palm oil (5 min.)

Variant 2
- Poster creation and exhibition (10 min.)

Material

➲ Posters

Introduction to Block 2 – Knowledge

ENTRY

Working together, the last block is recapitulated using the materials that have been developed:

- Has anybody encountered palm oil in everyday life? Did anyone have a dilemma last week? How did you deal with it?
- Summary of the dilemma situation from the vignette
- Compiling the various positions from the last lesson

  ⮌ Info: Dilemma at a glance
  ⮌ Info: Graphical representation of the positions

Guide to research and to the problem areas of palm oil at global level:

- Recapitulating the open questions and compiling missing background information and possible research approaches

  ⮌ Flipchart with questions from block 1

RESEARCH PHASE I

Free Research

The pupils divide into small groups with a maximum of five people. Working on their own, the pupils carry out research and gather as many reasons and arguments for conceivable positions as possible, based on the open questions and missing background information compiled. They make notes on this.

  ⮌ WS: Advantages and disadvantages
  ⮌ Info: Research tips
  ⮌ Info: Research paths (online articles, videos & podcasts)

Within the group, the pupils discuss their research findings, arguments and reasons for possible positions. They then agree on the five strongest arguments.

Note: Depending on the pupils' knowledge level and age, the Research tips & Research paths worksheets can optionally be distributed at the beginning of the research phase.

Introduction to Block 2 – Knowledge

RESEARCH PHASE II

Variant A

In-depth research

Working together, the small group carries out research to find more in-depth information to support the arguments, based on the five strongest arguments and reasons identified. The findings are noted on WS: Why method (one sheet per argument).

➲ WS: Why method

For the arguments and reasons found, the pupils prepare for the discussion in block 3 by identifying possible counterarguments. The reasons and arguments found as well as the counterarguments are written on moderation cards.

➲ Moderation cards

Variant B

Creating posters

The arguments and reasons are compiled in the plenary. Each small group then designs a poster for an argument of their choice (max. one poster per argument).

➲ Posters, design materials

CONCLUSION

Variant A

Exchange about the research process

The pupils talk about their research process in group discussions. The following key questions can be written on the board:

- How did you approach the research?
- How easy or difficult was it to find information and sources?

Compiling the problem areas of palm oil

In group discussions, different dimensions relating to the topic of palm oil are compiled and pupils sharpen their understanding of the problem. The following key questions can be written on the board:

- What problem areas exist in relation to the topic of palm oil?
- Did you come up with other dimensions to the problem?

Variant B

Art exhibition

The small groups present their posters on their arguments (2 min. each), explaining the advantages and disadvantages of palm oil. Some time is allowed after each presentation to clarify any questions that may arise.

➲ Posters

Looking ahead to the third block: The sequence for the next unit is looked over.

Note: Material from this block is needed for block 3!
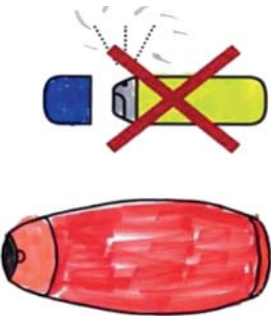
Palm Oil
Block 2 – Knowledge
Information Sheets

Block 2 – Info: Overview of the Dilemma

Note: Other positions can be added.

I buy the shampoo with palm oil and the deodorant

I buy the shampoo without palm oil and give up the deodorant

I get support from others for the decision
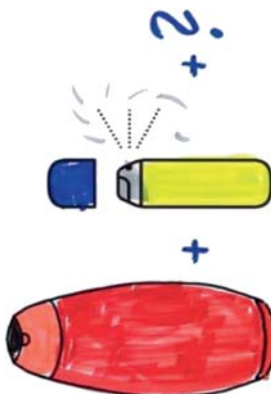
I only buy the deodorant and give up the shampoo with palm oil

I find a way to buy the shampoo without palm oil and the deodorant

Block 2 – Info: Graphical Representation of the Positions

WHAT ARE THE ADVANTAGES OF PALM OIL?

(+) High yields from a small area (compared to other oil plants)

(+) The livelihoods of many farmers

(+) Cost-effective production

(+) Heat-resistant, long-lasting, and versatile

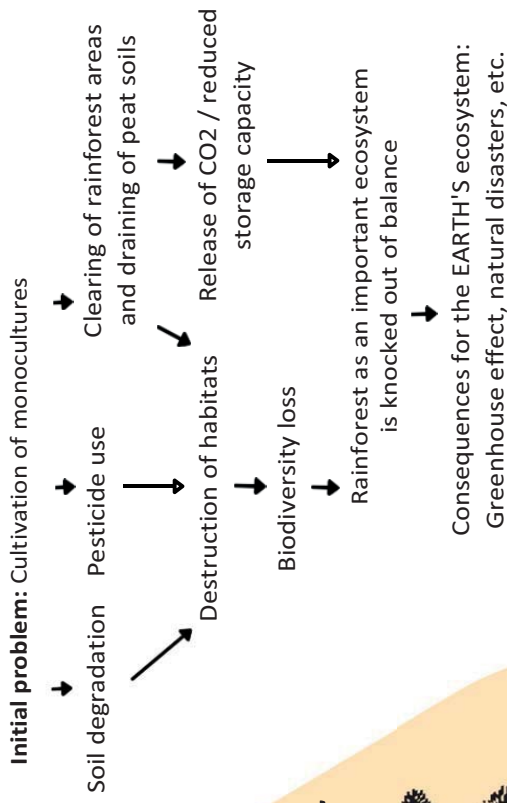## WHICH CIRCUMSTANCES CONTRIBUTE TO THE DILEMMA SURROUNDING PALM OIL?

(⊙) The certification issue
(for "sustainable" palm oil)

- Non-transparent supply chains
- Verifying guidelines is complicated: often a mixture of oils
- Additional costs and hurdles in production mean price hikes for consumers
- Risk of poverty for smaller farmers

(⊙) Lack of alternatives

- Bigger areas of land for the same yields→ Negative impact on biodiversity
- Alternative products (e.g. sunflower, rapeseed, coconut, and soya oil) usually more expensive
- Home-made products (e.g. cosmetics) tend to be impractical
- Toxic vapours during processing

PALM OIL

THE DILEMMA AT A GLANCE

WHAT ARE THE CONSEQUENCES OF PALM OIL PRODUCTION?

(−) **Consequences for climate and biodiversity**

Initial problem: Cultivation of monocultures

Soil degradation   Pesticide use   Clearing of rainforest areas and draining of peat soils

Destruction of habitats   Release of CO2 / reduced storage capacity

Biodiversity loss

Rainforest as an important ecosystem is knocked out of balance

Consequences for the EARTH'S ecosystem: Greenhouse effect, natural disasters, etc.

(−) **Social consequences**

- Dependence on palm oil as a central source of income
- Conflicts over land, farmers and indigenous people are displaced when new plantations are developed
- Social grievances on plantations (mistreatment, low wages, lack of social security)

(−) **Health risks**

- Respiratory problems due to slash-and-burn farming
- Habitat loss favours the spread of diseases from animals to humans
- Diseases spread more rapidly due to biodiversity loss (smaller gene pool)

43
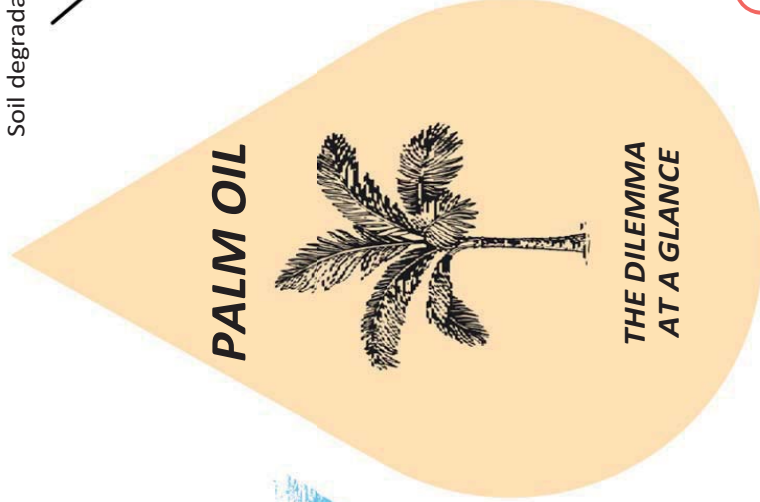
Block 2 – Info: Research Paths – Online Articles

The following questions may be helpful for your research. Ways of finding useful websites are provided as examples to help you:

What are the consequences of palm oil production for the environment?
Search terms: *Consequences of palm oil production; palm oil & environment; palm oil & climate, palm oil & animals, palm oil & health*

Examples

Abenteuer-regenwald.com → Threats → Palm oil
https://www.abenteuer-regenwald.de/bedrohungen/palmoel

What is palm oil used for?
Search terms: *Products containing palm oil; use of palm oil; what are all the products that contain palm oil?*

Examples

Regenwald-schuetzen.org → Consumer tips → Palm oil → Palm oil products in everyday life
https://www.regenwald-schuetzen.org/verbrauchertipps/palmoel/palmoelprodukte-im-alltag

What palm oil-free alternatives are there?
Search terms: *Palm oil alternatives, palm oil-free products*

Examples

Produkte-ohne-Palmöl.de
https://www.produkte-ohne-palmoel.de

What are the advantages and disadvantages of palm oil?
Search terms: *Palm oil advantages; palm oil disadvantages; palm oil production advantages; palm oil production disadvantages; palm oil problems; palm oil dilemma*

Examples

Alnatura.de → Magazine → Palm oil pros & cons
https://www.alnatura.de/de-de/magazin/palmoel-pro-und-contra/

WWF.de → Topics/Projects → Agriculture → Products from agriculture → Palm oil → Palm oil blessing or curse?
https://www.wwf.de/themen-projekte/landwirtschaft/produkte-aus-der-landwirtschaft/palmoel/palmoel-_segen-oder-fluch

Are there any solutions to the problems surrounding palm oil and if so, what are they?
Search terms: *Palm oil problems; palm oil solutions*

Examples

WWF.de → Topics & projects → Agriculture → Products from agriculture → Round tables → Palm oil round table
https://www.wwf.de/themen-projekte/landwirtschaft/produkte-aus-der-landwirtschaft/runde-tische/runder-_tisch-palmoel

Quarks.de → Environment → Why avoiding palm oil is pointless
https://www.quarks.de/umwelt/darum-bringt-ein-verzicht-auf-palmoel-nichts

Block 2 – Info: Research Paths – Videos & Podcasts

The following questions may be helpful for your research. Ways of finding useful websites are provided as examples to help you:

What are the consequences of palm oil production for the environment?
Search terms: *Consequences of palm oil production; palm oil & environment; palm oil & climate, palm oil & animals, palm oil & health*

Examples

Youtube.com → Schlaumal → The problem with palm oil
https://www.youtube.com/watch?v=PnlG2muP3bw

Youtube.com → Greenpeace → The path of palm oil
https://www.youtube.com/watch?v=mCjH51-gakk

What is palm oil used for?
Search terms: *Products containing palm oil; use of palm oil; what contains palm*

Examples

Youtube.com → SWR Marktcheck → Where palm oil actually makes sense. And what to look out for when shopping.
https://www.youtube.com/watch?v=5eEHOwfQlDc

What palm oil-free alternatives are there?
Search terms: *Palm oil alternatives, palm oil-free products*

Examples

Br.de → Mediathek → Video → Palm oil → Are there alternatives?
https://www.br.de/mediathek/video/palmoel-gibt-es-alternativen-av:5e18ad5ced5625001a52162a

Ardmediathek.de → Video → gut zu wissen → Palm oil better cultivation instead of boycott
https://www.ardmediathek.de/video/gut-zu-wissen/palmoel-besserer-anbau-statt- boykott/brfernsehen/

What are the advantages and disadvantages of palm oil?
Search terms: *Palm oil advantages; palm oil disadvantages; palm oil production advantages; palm oil production disadvantages; palm oil problems; palm oil dilemma*

Examples

Detektor.fm → Knowledge → Green Radio Palm Oil
https://detektor.fm/wissen/green-radio-palmoel

Are there any solutions to the problems surrounding palm oil and if so, what are they?
Search terms: *Palm oil problems; palm oil solutions*

Examples

Deutschlandfunkkultur.de → Practically no alternatives to the controversial fat → No palm oil is not a solution either
https://www.deutschlandfunkkultur.de/kaum-alternativen-fuers-umstrittene-fett-kein-palmoel-ist-100.html

Deutschlandfunkkultur.de → Alternatives to palm oil → Switching to coconut oil is not particularly smart
https://www.deutschlandfunk.de/alternative-zu-palmoel-umstieg-auf-kokosoel-ist-nicht-100.html

Block 2 – Info: Research Tips

Tip 1: Work your way from the general to the specific

Firstly, get a rough overview and deduce important keywords, sub-areas and questions for your further research. If you come across something interesting or something seems particularly important to you, follow it up. This will allow you to delve into the topic more deeply and find new areas.

Tip 2: Carry out the quality check

Good, reputable sources that you can use ...
- are current and relevant, i.e. important for your topic,
- have clearly recognisable authors who are ideally experts in the field,
- do not indicate any dubious intentions (e.g. propaganda or clear intentions to sell),
- characterise subjective points of view, such as opinions and evaluations,
- are written in a factual manner and create the overall impression of being serious and of good quality (e.g. do not contain conspicuously prevalent spelling mistakes),
- are based on verifiable facts, data and figures that you can verify.

Tip 3: Take a look outside Google

Without a doubt, Google is the best-known and largest search engine. But it's not the only one! In addition to Bing, Ecosia, and Yahoo, there are also meta search engines that comb through the popular search engines for you. These include, for example the German meta search engine MetaGer (https://metager.de/).
The European search engine Startpage (https://www.startpage.com/) works on the basis of Google by anonymising search queries and sending them to Google. This ensures very good protection of privacy.[1]
News portals and newspaper and magazine archives are also good places to start for a really broad search.

Tip 4: Make the best possible use of search for your purposes

By using various little search tricks in your search, you can reach your goal more quickly and more efficiently. For example, by inserting a hyphen in front of the term, you can exclude certain search terms or entire pages from the search (e.g. -site:bild.de).

Based on: https://www.cornelsen.de/empfehlungen/referat/recherchetipps (more search tricks are provided on this website) and https://www.focus.de/familie/lernen/lernhilfen/richtig-recherchieren-lernen-referate_id_1763033.html

[1] https://www.test.de/Suchmaschinen-im-Test-Eine-schlaegt-Google-5453360-5453367/

Block 2 − Info: Why Method

The Why method is used to engage with a particular aspect of palm oil in greater detail. Asking the question followed by scrutinising the answer leads the pupils to the actual causes of the argument.

EXAMPLE

Argument

Palm oil cultivation harms the climate.

Why?

When rainforest areas are cleared and peatlands are exposed, the capacity to store CO_2 is lost and harmful greenhouse gases are released into the atmosphere.

And that's because …?

The clearing of primary and secondary forests is causing the disappearance of important sources of oxygen that are important for us as well as the planet. This is because forests store a lot of carbon dioxide and convert it into oxygen. The peat soil on which rainforests often grow also stores carbon dioxide. When this is cleared, the soil is left exposed, which allows the carbon dioxide to escape into the atmosphere.

These are reasons why palm oil cultivation can be harmful to the climate.

Palm Oil
Block 2 – Knowledge
Worksheets

Block 2 – WS: Advantages and Disadvantages

Find reasons for and obstacles to the use of palm oil and enter them in the corresponding fields.

What are the reasons for using palm oil?

What are the reasons against using palm oil?
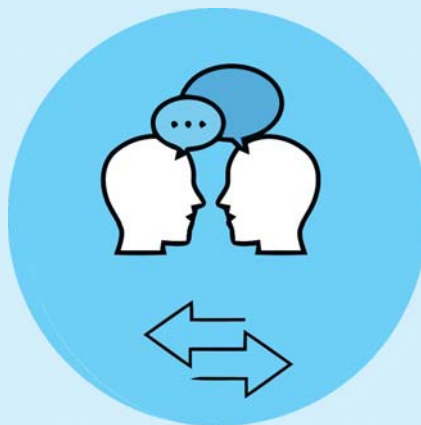
Block 2 – WS: Why Method

Argument:

Why?

And that's because?

Palm Oil
Block 3 – Positioning
Introduction

Introduction to Block 3 – Positioning

GOALS

The third block of the Palm Oil study unit focuses on discussing, exchanging and analysing various arguments as well as developing an informed position.

The aim is that the pupils
- practise discussing and arguing,
- bring different perspectives into dialogue with each other,
- analyse and reflect on the discussion and the various arguments,
- adopt a position based on the discussion and discuss the various reasons and motives for the decision,
- perceive and justify shifts in their positioning.

SEQUENCE

Entry   5 min
- Recapitulating the last lesson (5 min.)

Material
- ➲ Designed posters (if applicable)

Discussion   60 min
- Preparation phase (10 min.)
- Discussion phase (25 min.)
- Evaluation (25 min.)

Material
- ➲ Info Fishbowl
- ➲ Info Moderation – Goal and discussion sequence
- ➲ Info Moderation – Moderation stimuli and questions
- ➲ Info: Thinking hats
- ➲ WS Thinking hats
- ➲ WS: Advantages and disadvantages (block 2)
- ➲ WS: Why method (block 2) (if applicable)

Second positioning/ Mood   20 min
- Finding your own position (5 min.)
- Positioning in the room (5 min.)
- Exchange about the positions (10 min.)

Material
- ➲ WS: Single-sentence positioning (block 1)

Conclusion   5 min
- Looking ahead to the next block (5 min.)

Introduction to Block 3 – Positioning

ENTRY

Entry

Working together, the pupils recapitulate the last block:

- Has anybody encountered palm oil in everyday life? Did anyone have a dilemma last week? How did you deal with it?
- What are the advantages and disadvantages of using palm oil?

DISCUSSION

Preparation phase

Stimulus: The Fishbowl method is explained (variant A)/The Thinking hats and the Extended fishbowl method are explained (variant B).
- ➲ Info: Fishbowl (Variant A)
- ➲ Info: Extended fishbowl
- ➲ WS: Thinking hats (Variant B)

Variant A

Small groups: Recapitulating the arguments

The small groups from the previous knowledge block meet again and recapitulate the gathered arguments together so that the panellists are well prepared for the discussion. They appoint somebody as the first to join the inner circle discussion.
- ➲ WS: Advantages and disadvantages (block 2)
- ➲ WS: Why method (block 2) (if applicable)

Reorganisation: The room is then rearranged and prepared for the fishbowl discussion.
- ➲ Info: Fishbowl

Variant B

Recapitulating the arguments/ distributing the thinking hats

The pupils decide whether they would rather discuss or observe the discussion from the perspective of a thinking hat.
The small groups from the previous knowledge block meet again and recapitulate the gathered arguments together so that the panellists are well prepared for the discussion and appoint somebody as the first to join the inner circle discussion.
The pupils who are observing get together in a small group, familiarise themselves with the thinking hats, clarify open questions and decide who is going to take which hat perspective.
- ➲ WS: Advantages and disadvantages (block 2)
- ➲ WS: Why method (block 2) (if applicable)
- ➲ WS: Thinking hats

Note: At least two representatives from each small group of the previous knowledge block should be present in the discussion so that the range of arguments researched is represented in the discussion also.

Introduction to Block 3 – Positioning

Discussion phase

The discussion follows the moderation questions.
- ➲ Info: Moderation – Goal and discussion sequence
- ➲ Info: Moderation – Moderation stimuli and questions

Variant A

Fishbowl discussion

Phase 1 Arguments from the small groups: The main arguments prepared by each small group in the last block are presented in turn (inner circle).

Phase 2 Personal opinions and weightings: The circle is opened to everyone and the pupils can take part in the discussion independently via the free chair and leave the circle again. The panellists do not speak for the small groups anymore, but for their personal position (inner and outer circle).

- ➲ WS: Advantages and disadvantages (second block)
- ➲ WS: Why method (second block) (if applicable)

Variant B

Extended fishbowl discussion

Phase 1 Arguments from the small groups: The main arguments prepared by each small group in the last block are presented in turn (inner circle).

Phase 2 Personal opinions and weightings: The circle is opened to everyone and the pupils can take part in the discussion independently via the free chair and leave the circle again. The panellists do not speak for the small groups anymore, but for their personal position (inner and middle circle).

Observing the discussion: The pupils in the outer circle observe the discussion from the perspective of the hat in question and take notes.

- ➲ WS: Advantages and disadvantages (block 2)
- ➲ WS Why method (block 2) (if applicable)
- ➲ WS: Thinking hats

Evaluation

The evaluation initially takes place in small groups. In variant B, the observers form their own small group. The small groups with the panellists talk about the key questions from variant A.

Variant A

Key questions

- How did the discussion go?
- What was easy to discuss? What was difficult?
- Which arguments were particularly convincing, which were not?
- Which argument triggered something in you?

Variant B

Key questions for the small group with the observers

- How did the discussion go?
- Were arguments from the perspective of your hat mentioned? Which ones?
- Were there any hat perspectives that were particularly strongly or particularly weakly represented? Which ones?

The findings are then presented to the large group – in variant B this is supplemented by the reflection on the hat perspective from which the strongest and triggering arguments originate.

Introduction to Block 3 – Positioning

SECOND POSITIONING/MOOD

Finding your own position

After the discussion and the exchange of various arguments, the pupils adopt a position on the dilemma again and note their position on the Single-sentence positioning WS.

Key question: Now that I know the various arguments for and against palm oil, how would I decide if I were in this situation?
- ➲ WS: Single-sentence positioning
- ➲ WS: Single-sentence positioning (block 1)

Note: The instances of single-sentence positioning from the first block are required here. (see Exchange about the positions)

Positioning in the room

The pupils place their single-sentence positions on the floor anywhere in the room and walk around to look at the other positions. The various positions are then grouped together and placed around the room, ensuring that they are well spread out.

Exchange about the positions

The first step is to compile various positions and the reasons for these positions.

Key questions
- Why did I make this decision?
- What reasons are important to me here?
- How do I feel about the position?

In the second step, the current positions are compared with those from the first block.

Key questions
- Has the position changed?
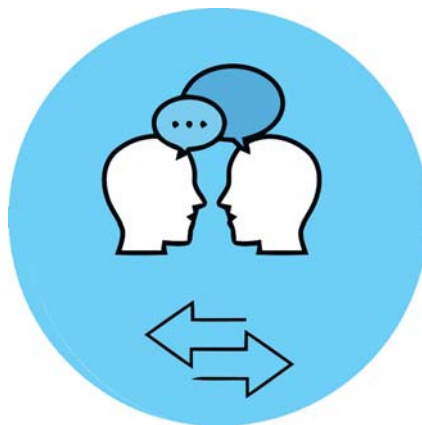- What led to the change?

CONCLUSION

Looking ahead to the fourth block

The sequence for the next unit is looked over.

Palm Oil
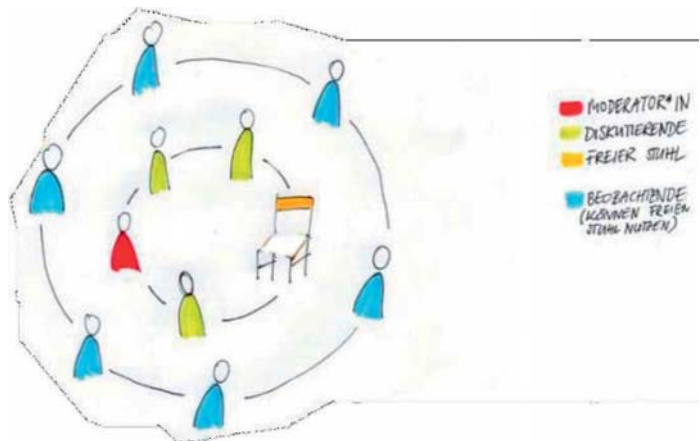# Block 3 – Positioning
Information Sheets

Block 3 – Info: Fishbowl

Fishbowl method

The fishbowl is a method that is suitable for dynamic discussions in larger groups. A smaller circle of panellists is surrounded by a larger circle of listeners, who can switch between the two circles at will.

Preparation

Small groups

- Before the discussion, the small groups from the previous knowledge block come back together and recapitulate the arguments they gathered so that the panellists are well prepared, then appoint somebody to start the discussion in the inner circle.

Reorganisation

- The seating arrangement for the fishbowl discussion is prepared based on the sketch.

Discussion

The discussion is divided into two phases. The arguments from the small groups are in focus during the first phase. The small groups' representatives determined during the discussion preparation phase take turns presenting the small groups' arguments. The pupils' personal opinions and the weighting of the arguments are in focus during the second phase. The circle is opened to all panellists (outer circle) and the panellists do not speak for the small group anymore, but from their personal perspective.

Moderation

- The teacher moderates the discussion (Info: Moderation – Goal and discussion sequence, Info: Moderation – Moderation stimuli and questions).

Inner circle

- The inner circle starts the discussion. Anyone who feels they have said everything they wanted to say can move from the inner circle to the outer circle.

Outer circle

- The pupils in the middle circle can use the available space in the inner circle to contribute their arguments to the discussion. If there is no space available, they stand behind somebody in the inner circle, who then finishes their thought and moves to the middle circle.

Block 3 – Info: Fishbowl

Evaluation

The evaluation initially takes place back in the small groups. The findings are then presented to the large group.

Key questions

- How did the discussion go?
- What was easy to discuss? What was difficult?
- Which arguments were particularly convincing, which were not?
- Which argument triggered you?

Block 3 – Info: Extended Fishbowl

Fishbowl method

The fishbowl is a method that is suitable for dynamic discussions in larger groups. A smaller circle of panellists is surrounded by a larger circle of listeners, who can switch between the two circles at will. An additional circle is added for this study unit. This additional circle does not participate in the discussion but observes it from the outside from a specific perspective.
(Info: Thinking hats)
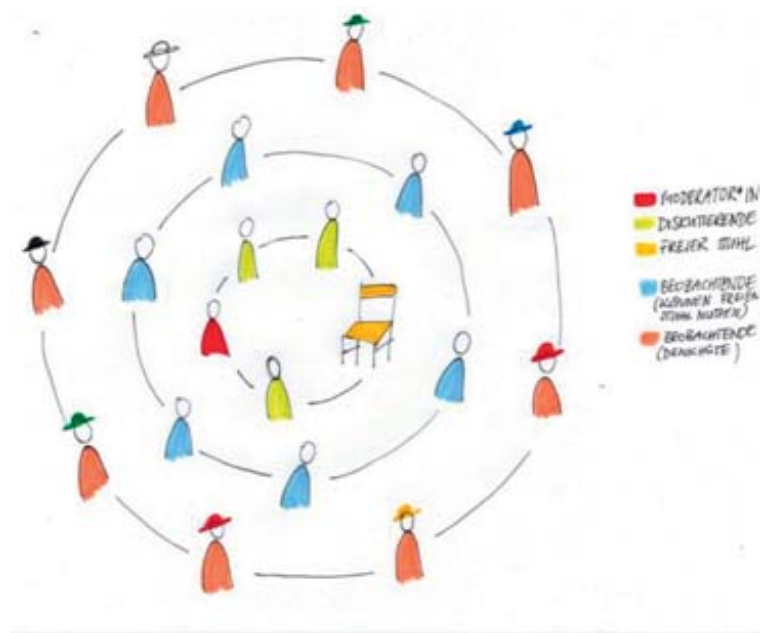
Preparation

Allocating roles

- The pupils decide whether they would rather discuss or observe and divide up accordingly. At least one representative from each small group from the previous knowledge block should be present in the inner circle and one in the middle circle so that the range of arguments researched is also represented in the discussion.
- A total of at least six pupils should observe in the outer circle so that each thinking hat is occupied by two people.

Small groups

- Before the discussion, the small groups from the previous knowledge block come back together and recapitulate the arguments they gathered so that the panellists are well prepared, then appoint somebody to start the discussion.
- The observers decide who takes which hat perspective and clarify any questions.

Reorganisation

- The seating arrangement for the fishbowl discussion is prepared based on the sketch.

Block 3 – Info: Extended Fishbowl

Discussion

> The discussion is divided into two phases. The arguments from the small groups are in focus during the first phase. The small groups' representatives determined during the discussion preparation phase take turns presenting the small groups' arguments. The pupils' personal opinions and the weighting of the arguments are in focus during the second phase. The circle is opened to all panellists (middle circle) and the panellists do not speak for the small group anymore, but from their personal perspective.

Moderation
- The teacher moderates the discussion (Info: Moderation – Moderation stimuli and questions , Info: Moderation – Goal and discussion sequence).

Inner circle
- The inner circle starts the discussion. Anyone who feels they have said everything they wanted to say can move from the inner circle to the middle circle.

Middle circle
- The pupils in the middle circle can use the available space in the inner circle to contribute their arguments to the discussion. If there is no space available, they stand behind somebody in the inner circle, who then finishes their thought and moves to the middle circle.

Outer circle
- The pupils in the outer circle observe the discussion from the perspective of the hat in question and take notes (WS: Thinking hats).

Evaluation

The evaluation initially takes place back in the small groups, with the observers forming their own small group.

Key questions	Key questions for the small group with the observers
• How did the discussion go? • What was easy to discuss? What was difficult? • Which arguments were particularly convincing, which were not? • Which argument triggered something in you?	• How did the discussion go? • Were arguments from the perspective of your hat mentioned? Which ones? • Were there any hat perspectives that were particularly strongly or particularly weakly represented? Which ones?

The results are then presented to the large group. This is followed by reflection on the hat perspective from which the strong and triggering arguments originate.

Block 3 – Info: Moderation – Goal and Discussion Sequence

Goal of the discussion

The discussion phase forms the core element of the third block. The goal of the discussion is to discuss the various arguments and reasons for and against the use of palm oil that were researched and identified in small groups in the previous block. The aim here is not to develop a concrete result or a group consensus. Rather, it is to establish a dialogue between the various aspects associated with the cultivation of the palm plant and palm oil production and use, as well as possible solutions and their associated advantages and disadvantages. The everyday world and the question of practicability also play a role here, as do the personal weighting and prioritisation of individual sub-problems.

Discussion sequence

Opening

An opening stimulus is intended to provide the space to address the arguments and reasons identified in small groups as well as other problem areas and solutions and provides an outlook on the discussion sequence.

Phase 1: Arguments from the small groups

One person from each small group sits in the discussion circle. The main arguments noted by each small group on their moderation cards in the last block are presented in turn.

Phase 2: Personal opinions and weightings

In the second phase, the circle is opened to everyone else, and the pupils can enter and leave the discussion at will via the available seat. The panellists do not speak for the small group anymore, but for themselves.

Block 3 – Moderation – Moderation Stimuli and Questions

Opening

An opening stimulus provides the space to address the arguments and reasons identified in small groups as well as other problem areas and solutions and provides an outlook on the discussion sequence.

Moderation stimulus:

In the last block, you engaged with palm oil. You researched the advantages and disadvantages of palm oil and the problems associated with the cultivation of the palm plant and palm oil production and use. We now want to discuss this:

What are the arguments for and against the use of palm oil?
What problems are associated with the cultivation of the palm oil plant and palm oil production and use?
How can these problems be solved? What can we do about it?

To do this, we will start by having a round in which representatives from each small group sit in the discussion circle and present the main arguments which you agreed on in the small groups during the last block. Then the circle will be opened up and you can take the available space in the discussion circle if you want to contribute something. Anyone who has said what they wanted to say goes back into the middle circle and makes room for others.

Phase 1: Arguments from the small groups

One person from each small group sits in the discussion circle. The main arguments that each small group came up with in the last block are presented one after the other.

Moderation phase 1: Arguments from the small groups

I'd like to welcome the representatives of the small groups to the discussion circle. We will now take turns and each of you will present the main arguments for or against palm oil.

Block 3 – Moderation – Moderation Stimuli and Questions

Phase 2: Personal opinions and weightings

In the second phase, the circle is opened to everyone else, and the pupils can enter and leave the discussion at will via the available seat. The panellists do not speak for the small group anymore, but for themselves.

Moderation phase 2: Personal opinions and weightings

Many thanks to the representatives of the small groups. We will now open the circle and you can take the space available if you want to join in the discussion. If there is no space available, you can stand behind a chair and take the seat as soon as it becomes available.

You will not speak for the small group anymore, but for yourselves.

You have now heard various arguments for and against palm oil. How do you personally feel about this?

Are there any other aspects that have not been mentioned yet?
Which arguments do you find the strongest?
Which problems do you find the most urgent?
What could be done to solve the problems?
How practicable are these solutions?

Note: If a consensus is reached quickly or similar opinions are held, opposing positions or arguments may be introduced by the moderator by asking specific questions.

Open questions

Open questions can be used to encourage panellists to elaborate on their points of view or to help encourage them to talk more and consider new angles.

Examples of open questions:

What ideas/perceptions do you have on the topic?
What does ... look like to you?
What should it look like in the future?
What does it look like in more concrete terms?
What else can be said about this?
How do you imagine ...?
Can you think of any more?
What aspect of this do you find particularly important?

What would be a better alternative?
What can be done instead?
What other options are there?
Why is this particularly important?
What does this mean for ...?
Who is particularly affected?
What can be done about it?
Why?
How does that make you feel?

Block 3 – Info: Thinking Hats

Thinking hats

Thinking hats, a creative technique elaborated by de Bono, is used for working on complex problems. The different hats represent various perspectives from which a topic is viewed. The pupils "put on" a hat and adopt the corresponding perspective. In this study unit, it is slightly adapted. The hats have been reduced, bringing the number of perspectives down to three: solution-orientated thinking, optimistic thinking and pessimistic thinking. The pupils observe and analyse the discussion and the arguments from each perspective. Which arguments are mentioned from each hat perspective? How many?

Solution-orientated thinking

The green hat stands for solution-orientated thinking. This represents an attitude that looks to the future and tries to find solutions. The focus of observation is on arguments that emphasise new ideas and approaches to problem solving.

Optimistic thinking

The yellow hat stands for optimistic thinking. This represents a hopeful, confident attitude with the conviction that everything is going to be fine. The focus of observation is on arguments that emphasise opportunities and positive aspects.

Critical thinking

The black hat stands for critical thinking. This represents a questioning attitude that seeks to identify potential stumbling blocks and problems. The focus of observation is on arguments that emphasise disadvantages, dangers and risks.

Idea behind the method: https://kreativitätstechniken.info/ideen-generieren/die-6-denkhute-von-de-bono/

Palmöl
Block 3 – Positioning
Worksheets
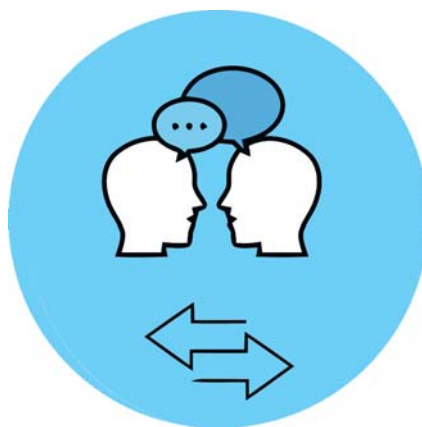
Block 3 – WS: Thinking Hats – Yellow Hat: Optimistic Thinking

Many different arguments are exchanged in a discussion. The arguments differ and often emphasise certain aspects of an issue or problem. Some arguments are particularly emotional and appeal to our feelings. Others are objective and emphasise facts. There are arguments that focus on advantages and opportunities, or those that emphasise disadvantages and risks.

Your task during the discussion is to pay attention to the perspective from which an argument is being made. You are a silent observer, "put on" the yellow hat and pay attention to arguments that emphasise advantages, opportunities and positive aspects.

Yellow hat: Optimistic thinking

The yellow hat stands for optimistic thinking. This represents a hopeful, confident attitude with the conviction that everything is going to be fine.

Observe the discussion and pay attention to arguments that emphasise opportunities and positive aspects.

Which and how many arguments are mentioned from the perspective of the yellow hat?

Make notes on the arguments and keep a tally sheet in the box.

Block 3 – WS: Thinking Hats – Green Hat: Innovative Thinking

Many different arguments are exchanged in a discussion. The arguments differ and often emphasise certain aspects of an issue or problem. Some arguments are particularly emotional and appeal to our feelings. Others are objective and emphasise facts. There are arguments that focus on advantages and opportunities, or those that emphasise disadvantages and risks.

Your task during the discussion is to pay attention to the perspective from which an argument is being made. You are a silent observer, "put on" the green hat and pay attention to arguments that emphasise new ideas and approaches to problem solving.

Green hat: Solution-orientated thinking

The green hat stands for solution-orientated thinking. This represents an attitude that looks to the future and tries to find solutions.

Observe the discussion and pay attention to arguments that emphasise new ideas and approaches to problem solving.

Which and how many arguments are mentioned from the perspective of the green hat?

Make notes on the arguments and keep a tally sheet in the box.

Block 3 – WS: Thinking Hats – Black Hat: Critical Thinking

Many different arguments are exchanged in a discussion. The arguments differ and often emphasise certain aspects of an issue or problem. Some arguments are particularly emotional and appeal to our feelings. Others are objective and emphasise facts. There are arguments that focus on advantages and opportunities, or those that emphasise disadvantages and risks.

Your task during the discussion is to pay attention to the perspective from which an argument is being made. You are a silent observer, "put on" the black hat and pay attention to arguments that emphasise disadvantages, dangers and risks.

Black hat: Critical thinking

The black hat stands for critical thinking. This represents a questioning attitude that seeks to identify potential stumbling blocks and problems.
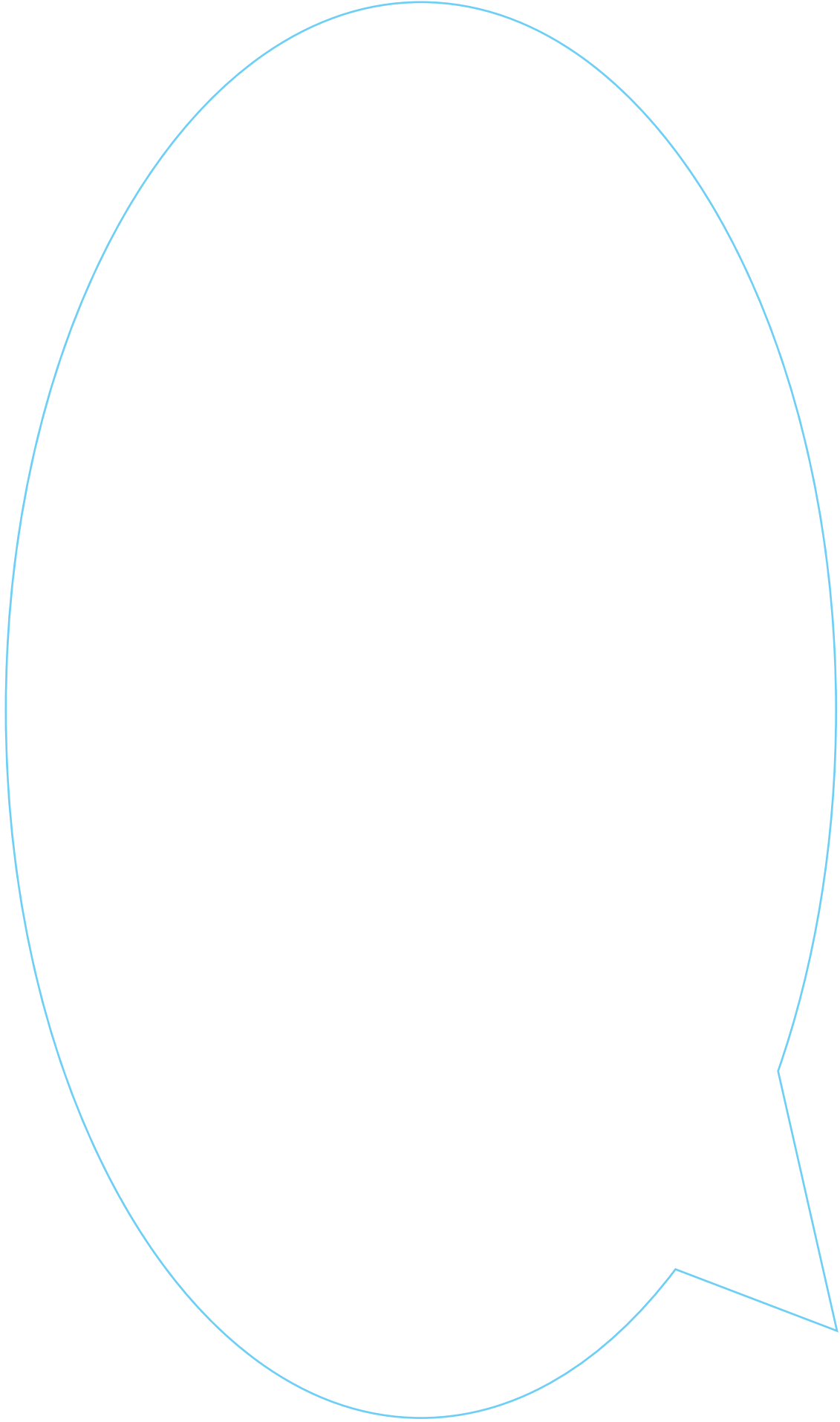
Observe the discussion and pay attention to arguments that emphasise disadvantages, dangers and risks.

Which and how many arguments are mentioned from the perspective of the black hat?

Make notes on the arguments and keep a tally sheet in the box.

Palm Oil
Block 4 – Courses of Action
Introduction

Introduction to Block 4 – Courses of Action

GOALS

The fourth block of the Palm Oil study unit focuses on possible courses of action.

The aim is that the pupils

- practise solving complex problems,
- are capable of motivating themselves and others to act,
- develop their communication skills and competences,
- reflect on their learning experiences and transfer them to future actions,
- are able to contribute to solving social problems.

SEQUENCE

Entry

15 min

- Working together, the discussion block is recapitulated and the addressed arguments, problem areas and solutions are revisited. (15 min.)

Potential actions and approaches to communication

60 min

Variant A

- Working in pairs, approaches to problem solving are developed based on the discussion in the previous block and the most convincing arguments. (30 min.)
- One-minute statements are developed as recommendations for the approaches to problem solving and are ceremoniously presented by all sides. (30 min.)

Variant B

- DIY-Lab: Pupils make alternative products. (30 min.)
- To-do list: pupils consider what can be done to solve problems related to palm oil. (15 min.)

Material

- ➲ WS: One-minute statement
- ➲ Info: Cosmetic recipes
- ➲ Materials for preparing the alternative products
- ➲ Chocolate cream & crackers & knives
- ➲ WS: To-do list

Note: Variant B leaves more time for the transfer

Transfer

15 min

Picnic

- Experience, feelings perceived, and knowledge acquired are reflected upon and transferred to future decision-making situations and actions (15 min.)

Material

- ➲ WS: Web of feelings
- ➲ WS: Reflection and transfer
- ➲ Crackers & chocolate cream

Introduction to Block 4 – Positioning

ENTRY

Review

The discussion block is recapitulated as a group in group discussions.

Key questions

- What were the central arguments of the discussion?
- Which arguments were particularly convincing?
- Based on these arguments, what would be some possible approaches to problem solving?

ENTRY

Variant A

1-minute statements

The pupils divide into pairs. Each pair of pupils develops approaches to problem solving based on the arguments compiled and formulates a statement that should be less than one minute long. The pupils consider who is to be addressed, the context in which the statement is to be given and the role from which they want to present their approaches to problem solving.

➲ WS: One-minute statement

Presentation

The pairs present their statements to the group. The pupils in the group take on the role of the audience and express their appreciation to the presenters.

Variant B

DIY-Lab

The pupils are divided into three groups and make alternative products. If there is time to spare, the groups can rotate so that each group has made each product once.

➲ Info: Recipes
➲ Materials for making the alternative products

Tasting/wellness time

The pupils try out the alternative products and can share their experiences in whispers.

To-do list

Working in pairs, the pupils consider what they can do about the various problems associated with palm oil.

➲ WS: To-do list

Introduction to Block 4 – Positioning

TRANSFER

Picnic

The pupils start by working alone and reflecting on the experiences and insights gained. They can eat the palm oil-free chocolate cream at the same time.
- ➲ WS: Web of feelings
- ➲ WS: Reflection and transfer
- ➲ Crackers with chocolate cream

Exchange

The pupils divide into groups of four and share their experiences.

Key questions

- What was new for me?
- What did I find particularly surprising?
- What am I taking with me into everyday life?
- Where can the learnings be applied?
- What am I taking with me for future decisions?
- How do I feel at the end of the unit? Has my feeling changed over time?

At the end, the experiences are shared in the plenary.

Palm Oil
Block 4 – Courses of Action
Information Sheets

Facial Cleansing and Moisturizing Lotion for dry, blemished skin

Pour 100 ml of boiling water over 2-3 tablespoons of oat flakes. Wait until the liquid has been absorbed. Strain with a sieve and leave to cool.

Either apply the massage the liquid into the face with pads or/and pour it into a spray bottle and "wash" the face with it several times a day.

Lasts 2-3 days or 1 week in the fridge

Honey Hair Conditioner

Honey conditioner gives the hair a beautiful shine. Don't worry, it's not sticky.

½ tsp honey
100 ml water

Mix and pour into an atomiser bottle. Keeps for 1 week or 2-3 weeks in the fridge

Palm Oil
Block 4 – Courses of Action
Worksheets

Block 4 – WS: One-Minute Statement

You have engaged with the advantages and disadvantages of palm oil in depth. Now it's time to find possible approaches to solving problems or sub-problems relating to palm oil. Your imagination is required: in pairs, think about which problems or sub-problems could be solved and how and by whom. Formulate a statement that is less than one minute long. Also think about the setting, role, format and style in which you want to speak. This depends on who you want to reach with your idea. The following questions will help you with this. At the end, present your statement to the class.

Preliminary considerations

What is the problem and why? What solutions are there?

e.g. clearing rainforest, poor working conditions during cultivation, destruction of the habitats of endangered species ...

Who should be addressed? Who can implement the solution?

e.g. politicians, society, the individual, companies ...

In what context and from what role do you want to speak? Which format will you use?

e.g. if **politicians** are to be addressed:
- Speech as a member of the European or the German Federal Parliament to introduce mandatory labelling of palm oil for cosmetic products also
- Pupils give a speech at Fridays For Future to lobby participants at a sustainability summit to improve certification guidelines

e.g. if **society and individuals** are to be addressed:
- Influencers provide information on alternatives to palm oil and post video tutorials on how to make home-made detergent (via YouTube, Tiktok etc.)

e.g. if **companies** are to be addressed:
- Entrepreneurs selling sustainable palm oil products write an open letter to their business network to ask them to join forces to support smallholder farmers in Indonesia

Which style do you want to use?

Examples:
- emotional
- personal, hopeful and inspiring
- angry or powerless
- formal

Tip: Voice and body language can be used to reinforce your message

Block 4 – WS: To-do List

What can I personally do?

What can my family do?

What can we at school do?

Block 4 – WS: Web of Feelings

Sometimes it's not so easy to become aware of your own feelings. The web of feelings should help you with this. You have been engaging with questions and problems relating to palm oil over the past few weeks. You have researched, discussed, adopted a position and developed possible courses of action.

How are you doing with this now?

Look at the web of feelings. Describe the feeling you are having at the moment. Place a dot in the web depending on the extent to which the feeling matches what is going on inside you. If you are not aware of the feeling at all, place a dot in the centre. If you are feeling it very strongly, place it at the very outside.

motivated

sad

undecided

10
8
6
4
2
0

hopeful

safe

unsettled

confident
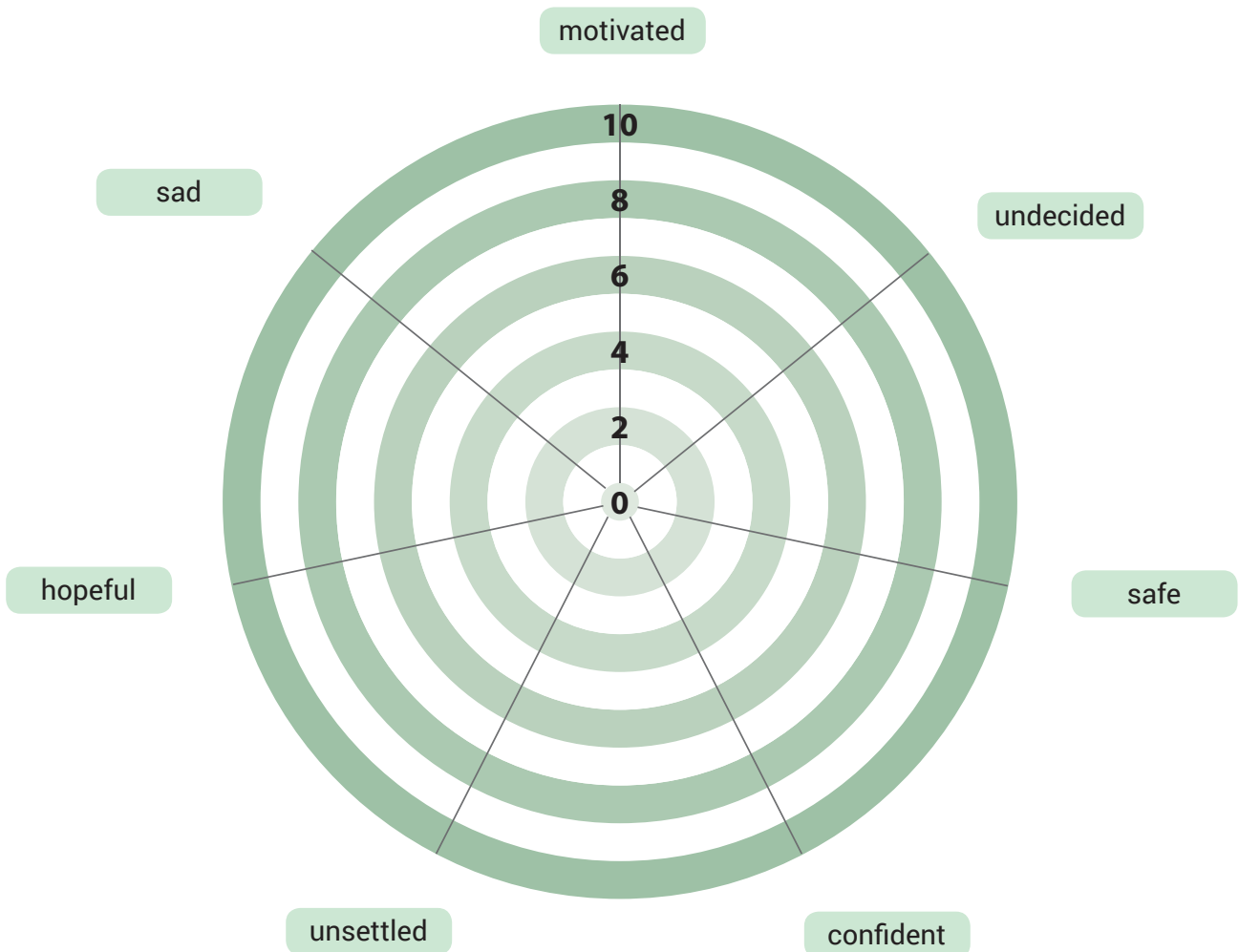
0 = absent

10 = very strong

Block 4 – WS: Reflection and Transfer

Review the last units and answer the questions in the boxes.
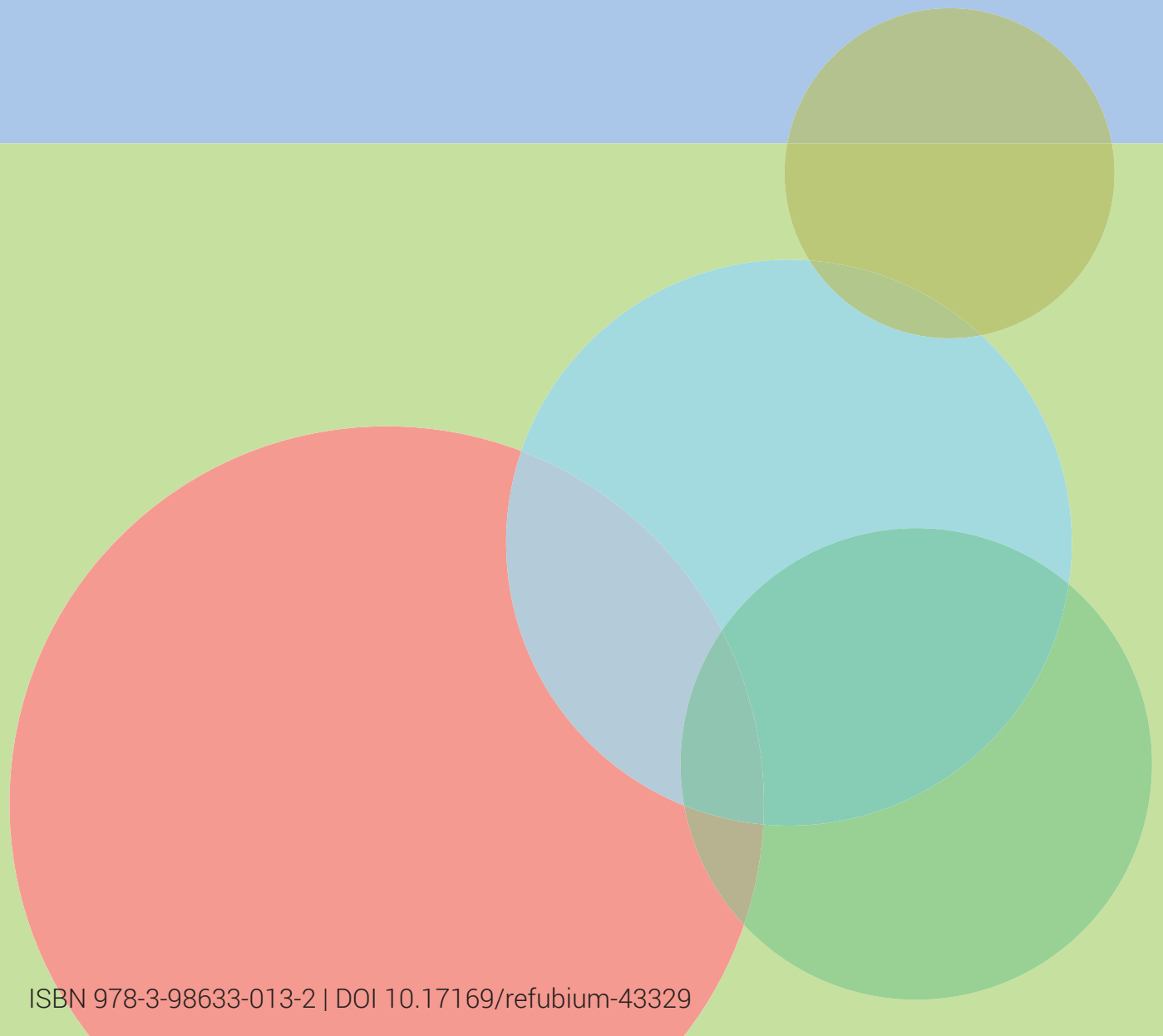
What was new for me?

What surprised me the most?

Where can I apply what I have learned?

What do I take with me into everyday life?

What do I take with me for future decisions?

How do I feel when I leave the session?
Has my feeling changed over time?

ESD
2030

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