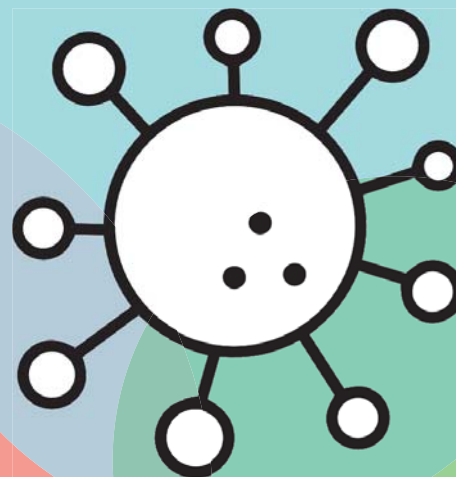




EDUCATION FOR SUSTAINABLE DEVELOPMENT

# DEVELOPING SKILLS IN DEALING WITH UNCERTAINTY

Teaching and learning materials on the topic of **Zoonoses**



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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 reflections on pupils' own attitudes and emotions. (For specific 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<sub>2</sub> 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.<sup>1</sup>

The teacher's role is to create stimulating opportunities for learning and to be on hand to offer advice during the process (Lind, 2019; Schirmacher, 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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<sup>1</sup> 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.

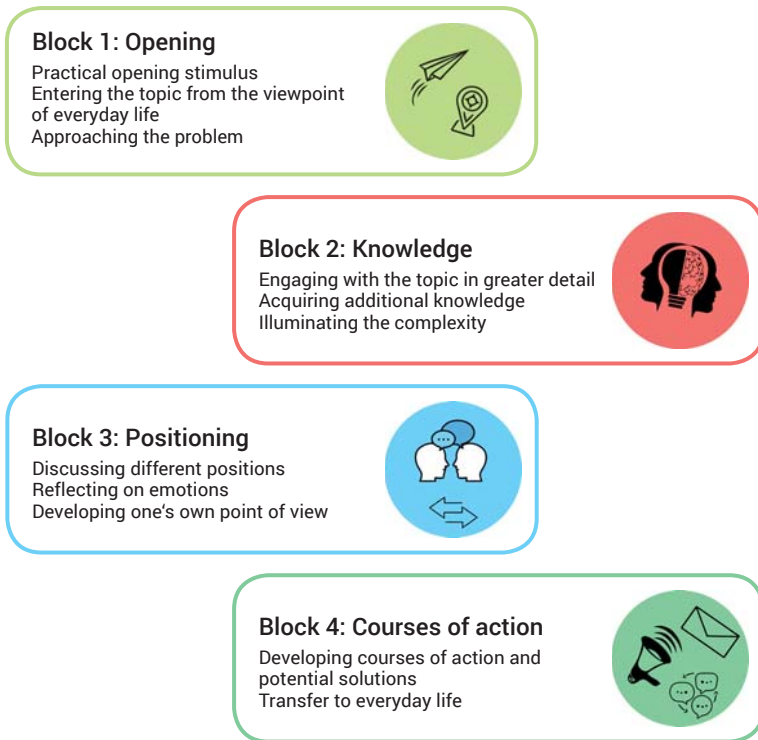
As a side note for you: The information sheets can be shared with pupils in some cases.

Notes are provided in the introduction in such cases.

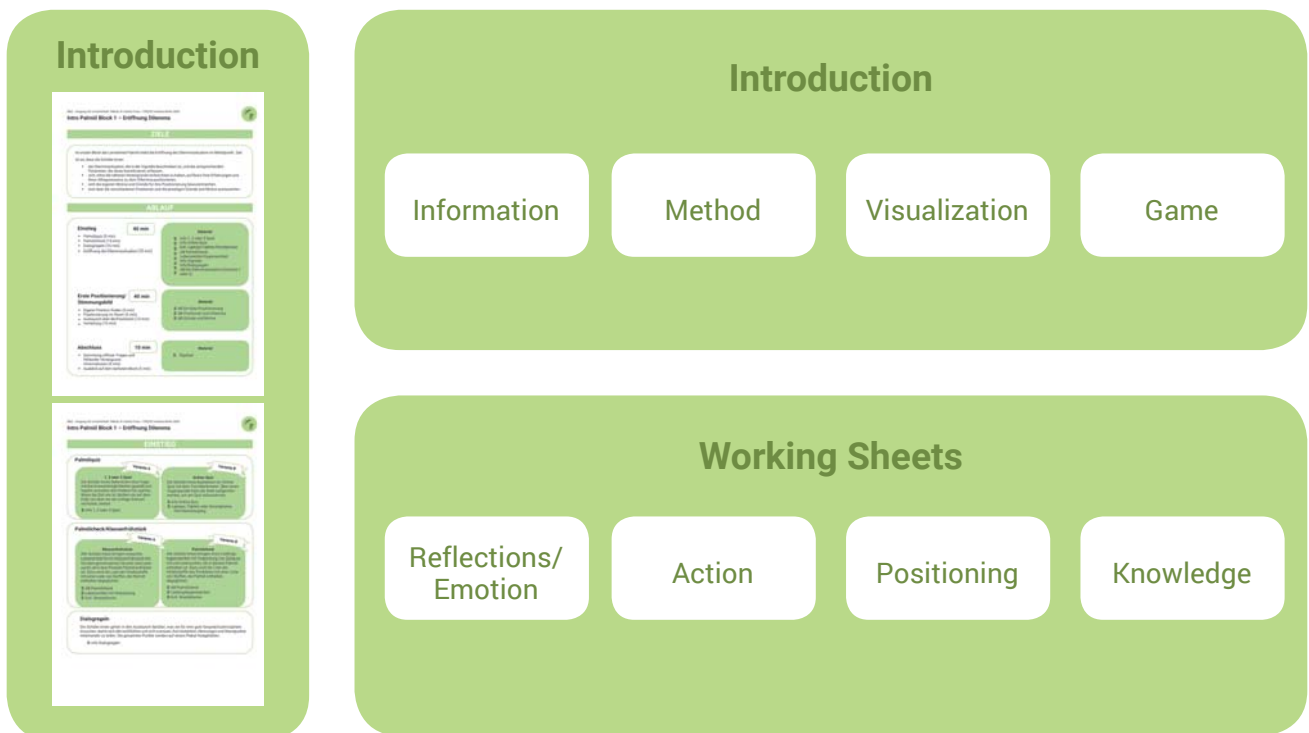
**The worksheets**, in turn, are aimed at the pupils. They help pupils explore and consolidate their positions. They also help them to reflect on their own emotions and record the knowledge they have acquired. Worksheets that encourage action, such as instructions on how to make palm oil-free cosmetics,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





**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.



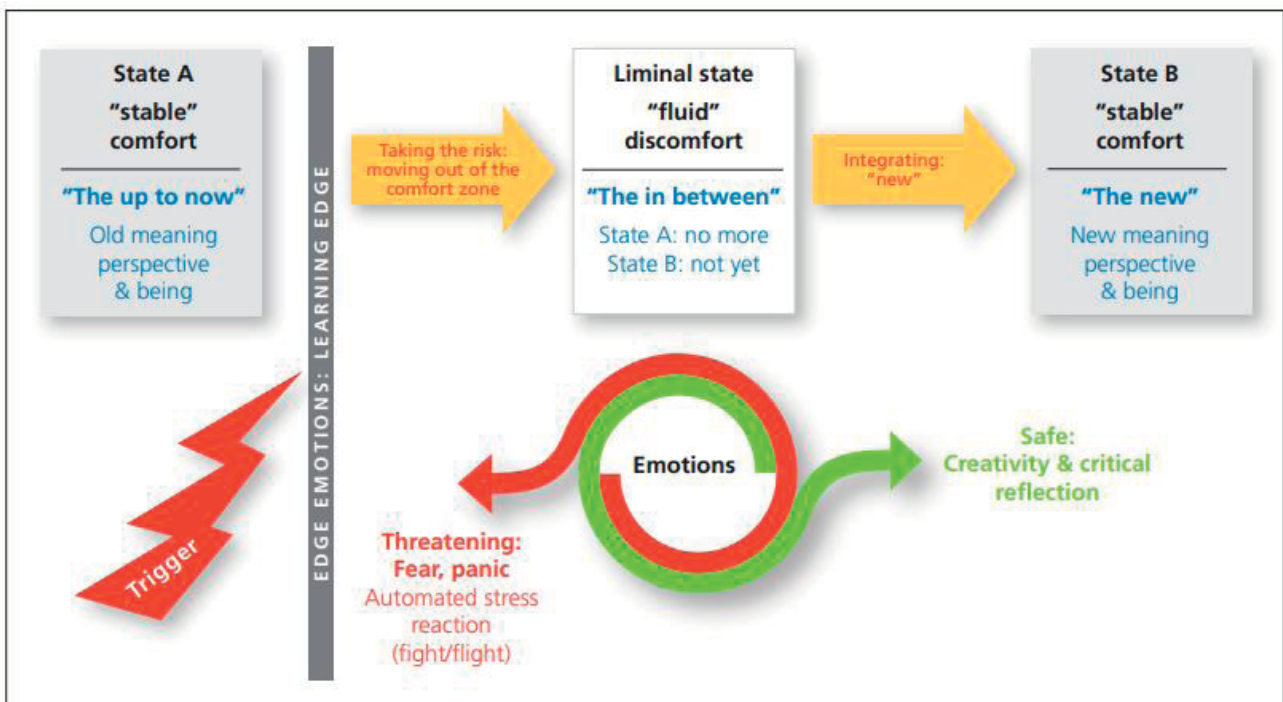
**Fig. 2.** The materials at a glance: As can be seen, the material is divided into introductions, information sheets, worksheets and their content components.

## 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](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

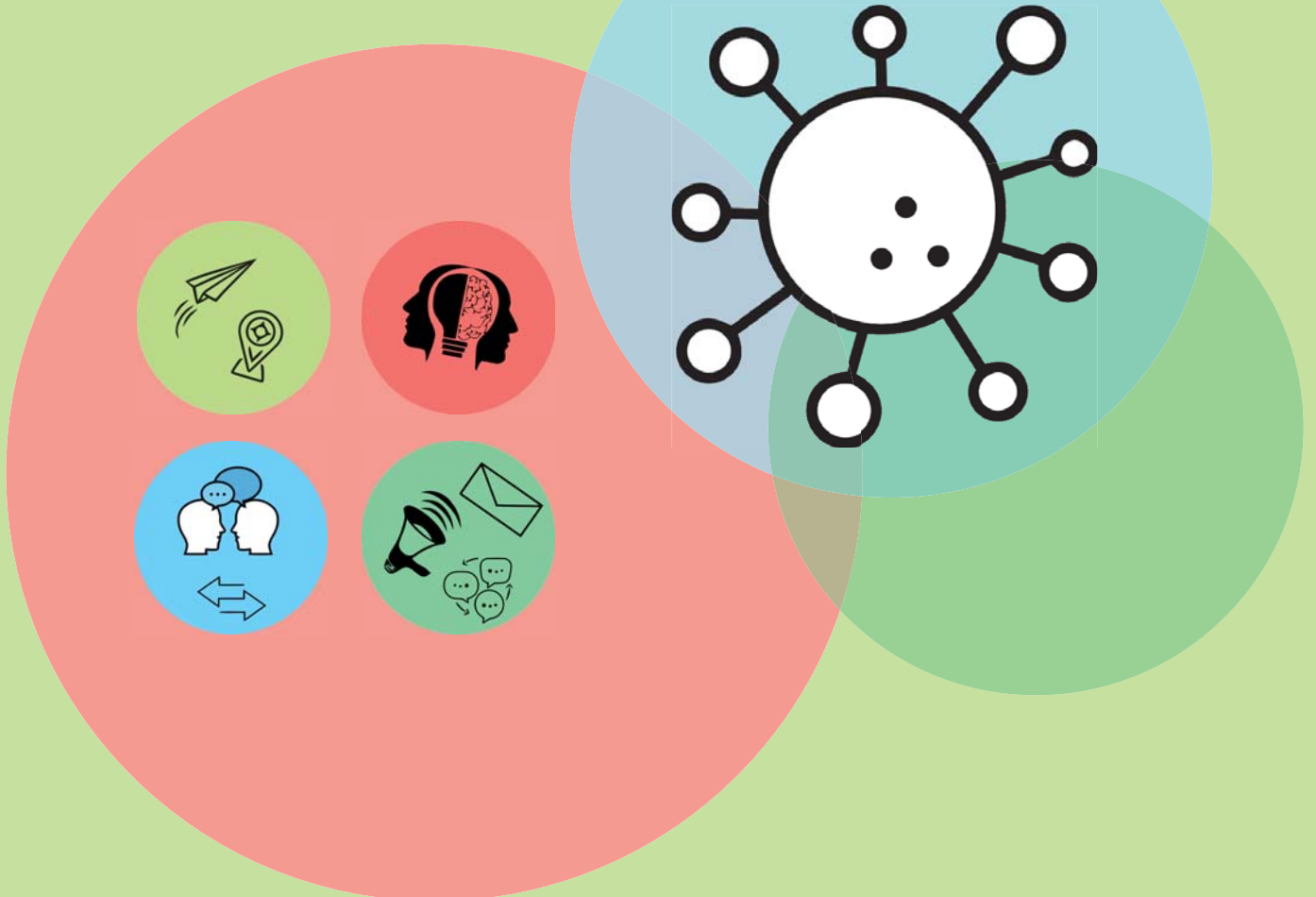
Criteria			Fulfilment
	Yes	No	Not applicable / Comment
<b>1. Contents</b>			
1.1 Sustainable development	✓		
1.2 Accuracy and timeliness	✓		Block 3 provides examples of research paths and reputable sources of information that were available at the time of publication. No liability can be accepted for 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.
<b>2. Methodology</b>			
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	✓		
<b>3. Formal design</b>			
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

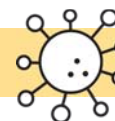
Material package on the topic

## Zoonoses



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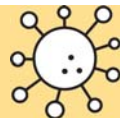
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## WHAT IT'S ALL ABOUT ...

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.

## ZOONOSES – THE SPREAD OF DISEASES FROM ANIMALS TO HUMANS



Zoonoses are infectious diseases that are transmitted from animals to humans and, in some cases, vice versa. They can develop from epidemics into pandemics and thus have a significant impact on world events, as was seen during the Covid-19 pandemic. At the same time, they are a natural component of our planet and will always be part of it.

However, mankind has created circumstances in which zoonoses are spreading increasingly quickly. Factory farming, wildlife trafficking and biodiversity loss due to the clearing of rainforests are all contributing to the accelerated spread of zoonoses.

How can we deal with the risks in everyday life and can we perhaps help reduce them? Can we do anything at all and if so, what? Are we prepared to change our way of life? Does the responsibility perhaps lie elsewhere, for example in the political sphere?

In this study unit, pupils address the risk they live with. They assess the risk, gain knowledge about the possibilities for minimising risk and weigh up what they themselves can do to develop their own point of view on the topic.

## 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 zoonoses 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

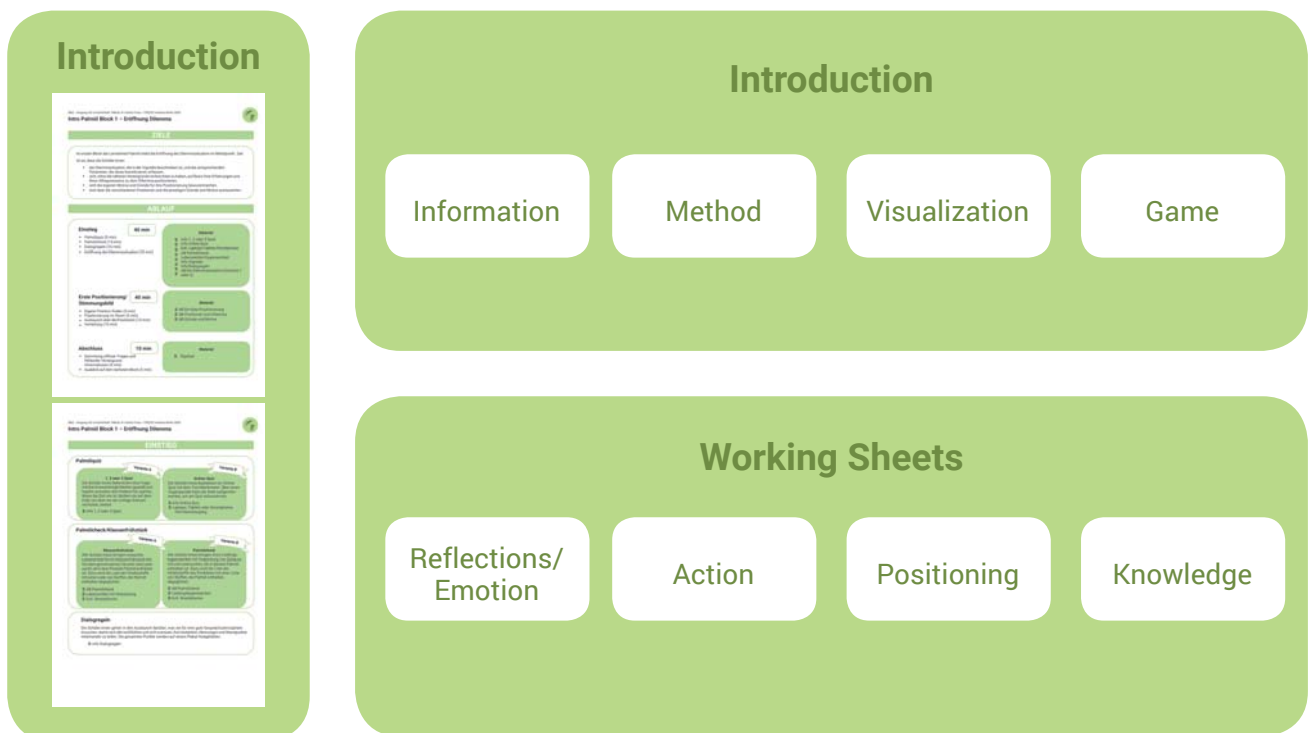
## USE OF MATERIALS

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.

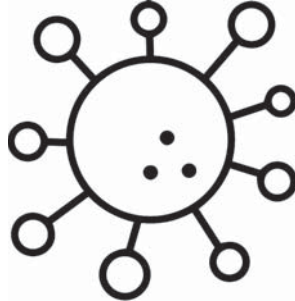
The **information sheets** mainly serve as a source of information on various aspects of the material or topic. They provide an insight into background information on the topic of zoonoses. Visualisations are provided in order to illustrate complex interrelationships or different positions. The individual 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.







**Zoonoses**  
**Block 1 – Opening Dilemma**  
**Introduction**





## Introduction to Block 1 – Opening Dilemma

### GOALS

The first block of the Zoonoses study unit focuses on opening up the topic and introducing the content.

The aim is that the pupils

- develop an understanding of what zoonoses are and how the risk of zoonoses affects us
- independently acquire knowledge on factors that favour zoonoses
- engage in dialogue and practise imparting knowledge to each other

### SEQUENCE

#### Entry

45 min

- Dialogue rules (10 min.)
- Opening the topic (10 min.)
- Approaching the content (15 min.)

#### Material

- Info: Dialogue rules
- Info: Vignette
- Projector and internet access
- WS: What are zoonoses?
- Info: Zoonoses
- Info: Visualization Transfer options

#### Research phase I

35 min

- Introduction (5 min.)
- Gaining knowledge (20 min.)

#### Material

- Info: Vignette Block 2 Part 1
- WS: Factory farming I
- WS: Biodiversity loss I
- WS: Wildlife trafficking I
- Info: Research tips
- Info: Zoonoses research paths
- Info: Zoonoses
- Info: Factory farming
- Info: Biodiversity loss
- Info: Wildlife trafficking

#### Conclusion

10 min

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



## Introduction to Block 1 – Opening Dilemma

### ENTRY

#### Dialogue rules

Working with the teacher, the pupils reflect on how they want to communicate with each other during the course of the project and make note of their ideas on a poster.

- ➡ Info: Dialogue rules

#### Opening the topic

Vignette: A discussion based on the key questions takes place in the plenary. The first part of Vignette Block 1 is then read out or told.

- ➡ Info: Vignette Block 1 Part 1

#### Key questions

- Where did the coronavirus come from?
- How was it transmitted to humans?
- Has anyone here ever heard of zoonoses?

#### Approaching the content

The pupils are shown an information video from "Terra X plus Schule" on the topic of zoonoses. The pupils take notes based on prepared questions (WS: What are zoonoses?). The questions are then analysed in the plenary. The Visualisation of transmission possibilities Info may be used for illustration purposes. The Zoonoses Info may be used as a source of background information for you as a teacher.

- ➡ Video link: <https://www.zdf.de/dokumentation/terra-x/plus-schule-zoonosen-100.html>
- ➡ Projector and internet access
- ➡ WS: What are zoonoses?
- ➡ Info: Visualisation of transmission possibilities
- ➡ Info: Zoonoses

#### Questions on the video

- What are zoonoses and what are some
- How are zoonoses transmitted?
- What favours zoonoses?

#### Virus game

The pupils play the virus game and learn how the transmission of pathogens is influenced by ecosystem shrinkage.

- ➡ Chalk or masking tape to mark the playing field

#### Description of the game

One child plays the role of the virus. Keeping his/her eyes closed, this child has to try to catch the other children. The other children are not allowed to touch the virus, and if the virus touches one of them, they are then infected and become another virus. The playing field (rainforest) is made smaller with each round. Make sure that the "viruses" stay on the field.



## Introduction to Block 1 – Opening Dilemma

# RESEARCH PHASE I

### Introduction

The second part of Vignette Block 1, in which the three friends start researching the topic of zoonoses, is read out or narrated. Research approaches are then compiled.

**Key question:** Where would you look for information on zoonoses?

➔ Vignette Block 1 Part 2

### Obtaining information

The pupils are divided into three topic groups: one group for each of the three conditions that favour zoonoses (biodiversity loss, factory farming, wildlife trafficking). Within the groups, they work in teams of two to do research and find information on their respective topic in line with the questions on the worksheets (WS: Factory farming I, WS: Biodiversity loss I, WS: Wildlife trafficking). Background information is provided on the information sheets (Factory farming Info, Biodiversity loss Info, Wildlife trafficking Info).

- ➔ Info: Zoonoses
- ➔ WS: Factory farming I
- ➔ WS: Biodiversity loss I
- ➔ WS: Wildlife trafficking I

- ➔ Info: Factory farming
- ➔ Info: Biodiversity loss
- ➔ Info: Wildlife trafficking

#### Key questions

- What favours ... the occurrence of zoonoses?
- Why does factory farming/wildlife trafficking exist?

Or

- How does biodiversity loss occur?

**Note:** Depending on the pupils' knowledge level, the WS: "Research tips" can be used. Anyone who has difficulty finding an approach can use the Info: "Research paths" for inspiration.

- ➔ Info: Research tips
- ➔ Info: Zoonoses research paths

### Knowledge sharing

New groups of 3 are formed, including one representative from each subject area. The pupils share their knowledge on the different transmission possibilities.



## Introduction to Block 1 – Opening Dilemma

# CONCLUSION

### Conclusion

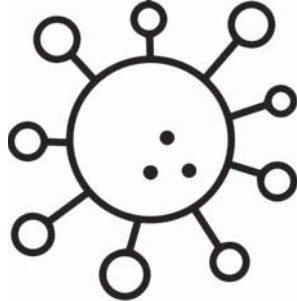
In the plenary session, the newly acquired knowledge is summarised using examples and the research process is discussed.

#### Key questions

- What did you talk about in the groups?
- What did you find out?
- How did you approach the research? How easy or difficult was it to find information and sources?

#### Looking ahead to the second block:

The sequence for the next unit is looked over.



**Zoonoses**  
**Block 1 – Opening Dilemma**  
**Information Sheets**





## 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.**



## Block 1 – Info: Vignette

### Vignette Block 1 – What are zoonoses?

#### Part 1 (Entry)

Friends Menina, Jens and Charly discuss the Covid-19 pandemic after school. Charly often uses the term "zoonoses" in her stories. Jens and Menina want to know what this means. Charly explains that zoonoses are pathogens that can be transmitted from animals to humans and vice versa. Zoonoses can develop from epidemics into pandemics. All three find the topic very interesting, but Jens has not understood the subject fully yet. *"How do the transmissions actually occur?"*, he wonders. Charly can't remember exactly either. So the three friends watch an information video on the subject.

#### Part 2 (Research phase I)

The video aroused the interest of the three friends, and they want to find out more about the topic. The information video talks about how the spread of zoonoses is favoured by factory farming, wildlife trafficking and biodiversity loss, among other things. But how exactly? To get to the bottom of the question, the three friends do some online research.

### Vignette Block 2 – Research

The three friends now have a better understanding of the areas in which zoonoses occur. But during their research, Menina wonders: *"How do zoonoses actually affect our everyday lives, how do we potentially favour their spread through our behaviour and what can be done about it?"* Off hand, the other two can't think of anything either. So they continue to research factory farming, wildlife trafficking and biodiversity loss and think about where they come in contact with these topics and what they can do about it. Charly, for example, finds out about the effects of factory farming on the spread of zoonoses. She suggests that they stop eating meat and, if they do eat it, make sure the animals are not kept in confined spaces. Menina, on the other hand, doesn't want to limit herself in her choice of food. However, she would like to reduce the risks in other ways by taking part in a protest against wildlife trafficking. Her idea is that, by doing this, she can inform more people about the connection between zoonoses and wildlife trafficking. Jens believes that the responsibility lies at political level. He believes that it would be more effective if laws were passed against wildlife trafficking and in favour of more species protection and nature reserves.





## Block 1 – Info: Vignette

### Vignette Block 3 – Positions

The three friends have finished their research on zoonoses for the time being. The last time they met, they discussed how the topic comes up in their everyday lives and what could be done locally and globally to prevent zoonoses. They came to the conclusion that zoonoses cannot really be prevented. Nevertheless, there are ways to minimise the risks of them spreading. To do this, we would have to change our way of life.

But is that even necessary? This sparks a heated discussion between the friends, as they all have slightly different opinions on the subject. Jens says: *"There's no point doing anything about zoonoses. The risk of new diseases developing has always existed and always will."* Charly responds: *"But covid was so terrible. I'm afraid something like that will happen again. I'm prepared to do everything in my power to make zoonoses a rare occurrence."* Menina's view is: *"I think it's important to do something about zoonoses, but I don't want to change my own behaviour too much."*

At some point, they realise that having different opinions is not a bad thing, because everyone perceives and assesses risks differently.

The three friends decide to respect each other's opinions, and each of them explains how they want to deal with the risks.

### Vignette Block 4 – Three detectives

After the last meeting, the three friends have become clearer on their positions, values and views on the subject of zoonoses. They want to share their newly acquired knowledge with others. Menina says: *"I have a YouTube account. Would you like to upload a video about zoonoses?"*

The other two think it's a great idea. Before they get to work, they decide who is going to take on which task. Charly doesn't feel comfortable in front of the camera. So she wants to use her smartphone to do the recording. Jens and Menina want to appear in the video. They decide to make the video in an interview format. Jens moderates and asks Menina questions.

They write and rehearse their lines together. Then they look for a place to shoot the video. They decide to use Menina's courtyard, which is relatively quiet and has plenty of light. It also has a white wall, which they imagine would be a good backdrop. After a few attempts, they have a flawless recording that everyone is happy with. They watch the completed video together once again and are delighted with the result.



## Block 1 – Info: Zoonoses

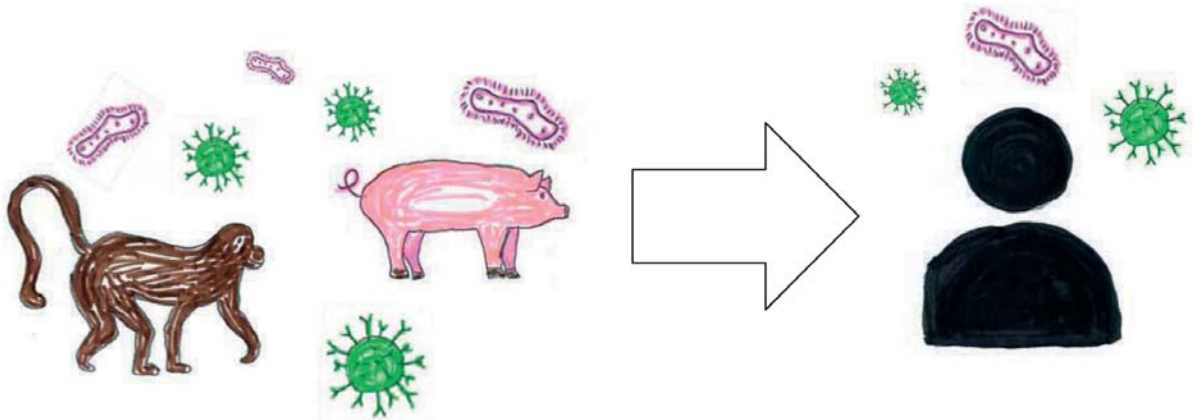
### What are zoonoses?

Zoonoses are diseases that are transmitted from animals to humans and from humans to animals. The term comes from the Greek and is made up of the words "zoon" (creature) and "nose" (disease). Almost 70% of all infectious diseases are zoonoses, such as bird flu, Ebola or the Sars-Cov-2 coronavirus. Pathogens can be viruses as well as fungi and bacteria.

### How does the transmission from animals to humans work?

#### Direct contact with an infected animal

If contact occurs between pathogen-infected farm or wild animals and humans, the pathogen can be transmitted to humans. For example, if the animal bites the human.



#### How does this affect us in our everyday life?

Encounters with wild animals can also occur in everyday life – and not just in the countryside. Wild animals live in the city, too. Foxes, hedgehogs, squirrels and rabbits are cute and often used to human contact and are therefore less shy. Nevertheless, touching or stroking them is something we should avoid doing.

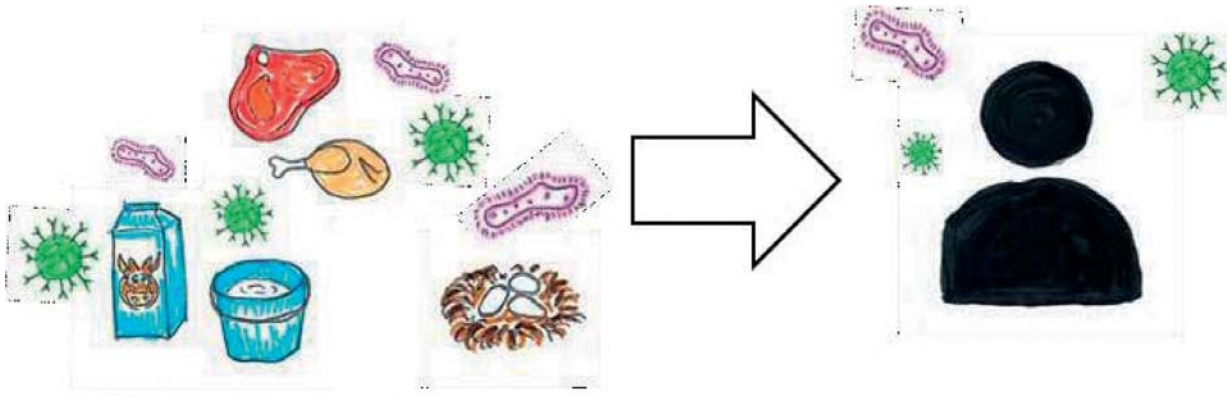
Nor should injured animals be taken home and treated. If you find an injured animal, maybe you can inform the forest ranger.



## Block 1 – Info: Zoonoses

### Contact with animal products

Animal products such as milk, meat or eggs from an infected animal can carry the pathogen. If humans come in contact with these products, for example during processing, humans can pick up the pathogen.

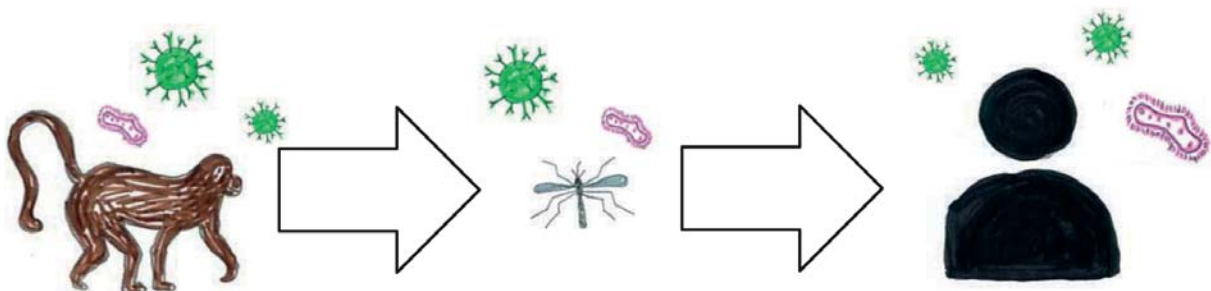


### How does this affect us in our everyday life?

Animal products from the supermarket or from a farm shop are safe in Germany, as strict regulations on hygiene and the handling of sick animals are in place. However, fruit can also carry the pathogen, for example, if it has come in contact with animal urine. This is why it is important to wash fruit you have harvested yourself thoroughly and not to pick berries from the very bottom of a bush, for example.

### Contact with vectors

Transmission is also possible through animals that are carrying the pathogen but are not themselves infected, i.e. vectors. These can be mosquitoes, for example, when they bite an infected animal, then carry the pathogen and transmit it to the next person they bite.



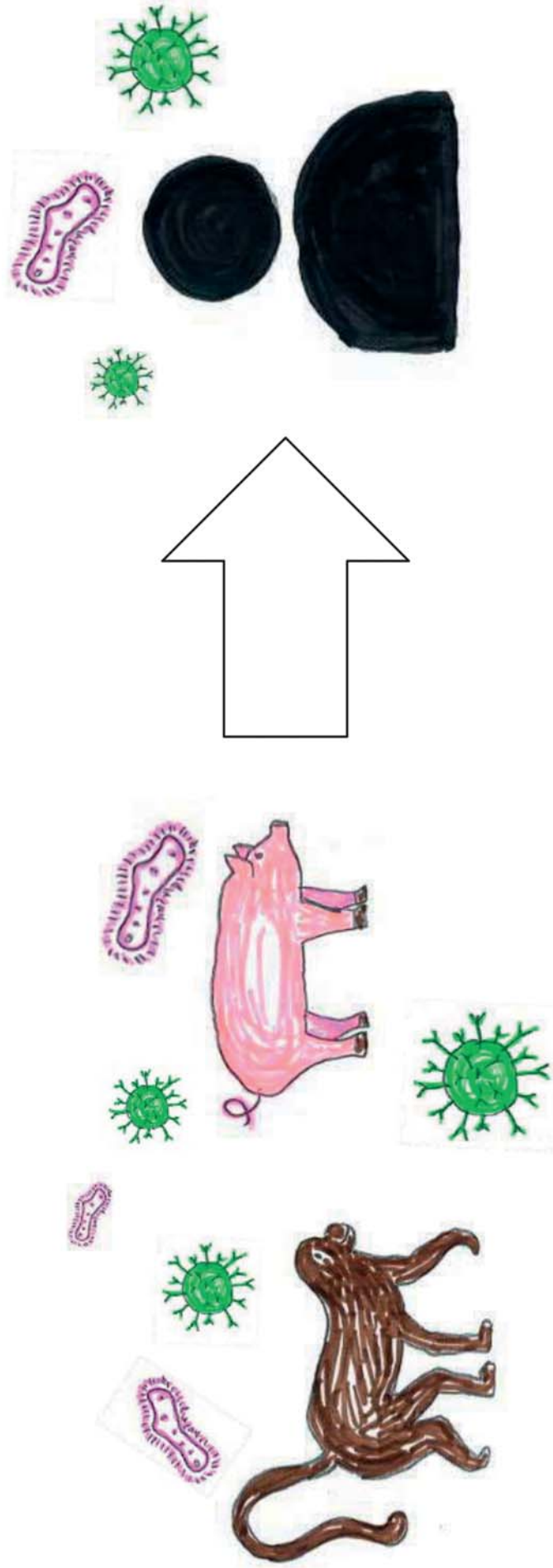
### How does this affect us in our everyday life?

You can spray yourself with insect repellent to avoid mosquito bites and tick bites. If you get bitten or stung regardless, monitoring is important. Severe swelling and redness may be signs of an infection. In this case, a doctor should take a look at it.



## Block 1 – Info: Visualisation of Transmission Possibilities

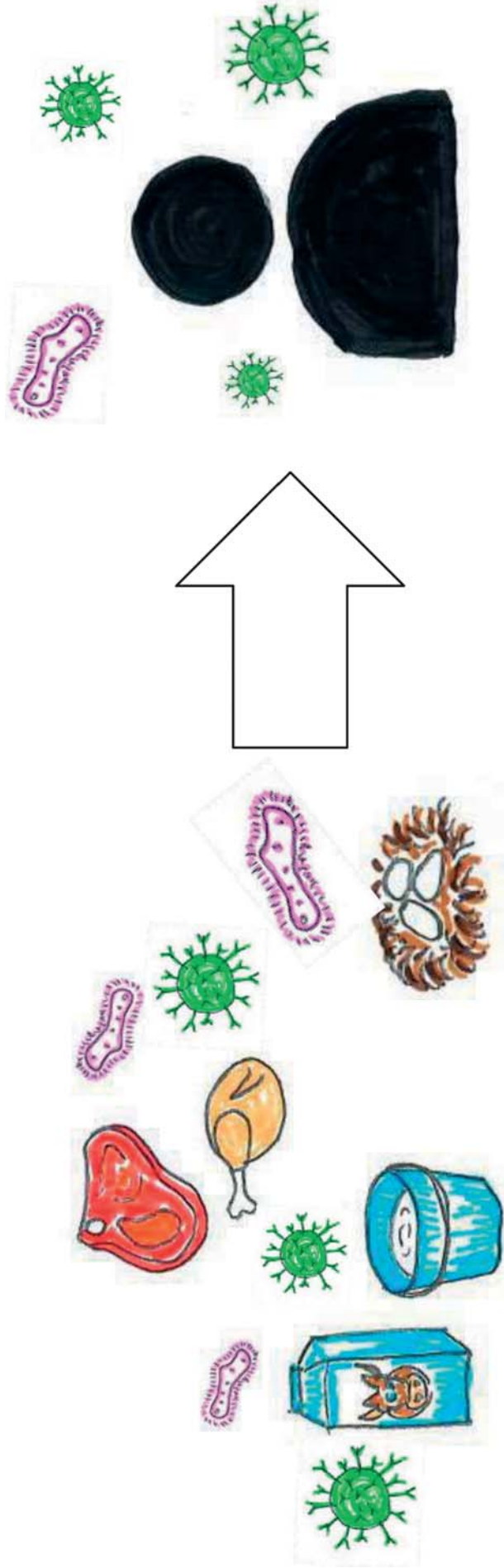
### Direct contact with an infected animal





## Block 1 – Info: Visualisation of Transmission Possibilities

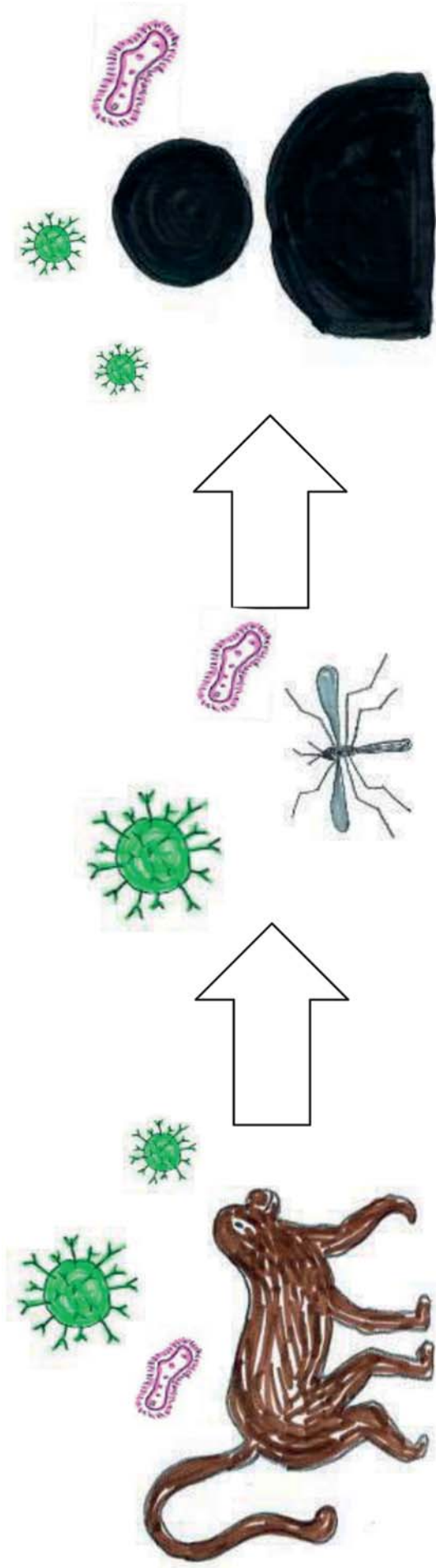
### Contact with animal products





## Block 1 – Info: Visualisation of Transmission Possibilities

### Contact with vectors





## Block 1 – 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 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).
- are written in a factual and objective manner.
- comprise subjective points of view, such as opinions and evaluations.
- are current.
- 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.

### Tip 3: Take a look outside of 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.<sup>1</sup>

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 Google search for your purposes

By using various little search tricks in your Google search, you can reach your goal in a faster and better way. 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/richtiq-recherchieren-lernen-referate\\_id\\_1763033.html](https://www.focus.de/familie/lernen/lernhilfen/richtiq-recherchieren-lernen-referate_id_1763033.html)

<sup>1</sup> <https://www.test.de/Suchmaschinen-im-Test-Eine-schlaegt-Google-5453360-5453367/>



## Block 1 – Info: Research Paths – Zoonoses

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

### What are zoonoses?

Search terms: *Zoonoses, What are*

#### Examples

Zdf.de → Search field → Zoonoses → Video: How animals can make us sick  
(<https://www.zdf.de/dokumentation/terra-x/plus-schule-zoonosen-100.html>)

ardmediathek.de → Search field → Zoonoses good to know → Video: Good to know: The fight against new pathogens  
(<https://www.ardmediathek.de/video/gut-zu-wissen/kampf-gegen-neue-erreger/br-fernsehen/Y3JpZDovL2JyLmRlL3ZpZGVvLzA5YzE0ODI5LTE2ZTEtNDIjOS05ZWU2LWUwMzFmOGMyYjMyZg>)

Ardmediathek.de → Search field → Zoonoses → Video: Good to know - Where do zoonoses come from?  
(<https://www.ardmediathek.de/video/gut-zu-wissen/woher-kommen-zoonosen/br-fernsehen/Y3JpZDovL2JyLmRlL3ZpZGVvLzA5YzE0ODI5LTE2ZTEtNDIjOS05ZWU2LWUwMzFmOGMyYjMyZg>)

Youtube.de → Search field → MrWissen2go, zoonoses → Video: Wildlife markets: Breeding grounds for coronaviruses - Zoonoses and species extinction  
(<https://www.youtube.com/watch?v=p3WdkD6SZdM&t=6s>)

### What favours zoonoses and what measures are in place to reduce them?

Search terms: *What favours zoonoses? Influence of factory farming & biodiversity loss & wildlife trafficking on zoonoses; solutions to contain the spread of zoonoses?*

*Zoonoses hotspots*

#### Examples

quarks.de → Search field → Zoonoses → Article: When diseases jump from animal to human  
(<https://www.quarks.de/umwelt/tierwelt/wenn-krankheiten-von-tier-zu-mensch-springen/>)

ardalpha.de → Search field → Pandemics of the future: How can we contain the spread of viruses?  
(<https://www.ardalpha.de/wissen/gesundheit/viren-pandemien-der-zukunft-umwelt-klima-100.html>)

br.de → Search field → Preventing zoonoses → Podcast: Preventing zoonoses - Can pandemics be nipped in the bud?  
(<https://www.br.de/mediathek/podcast/iq-wissenschaft-und-forschung/zoonosen-verhindern-lassen-sich-pandemien-im-keim-ersticken/1820680>)

swr.de → Search field → Why coronavirus infections between animals and humans are a problem  
(<https://www.swr.de/swr2/wissen/deshalb-sind-corona-infektionen-zwischen-tier-und-mensch-ein-problem-100.html>)

deutschlandfunk.de → Search field → Zoonoses → Podcast: What responsibility humans bear for the corona pandemic  
(<https://www.deutschlandfunk.de/klima-tiere-zoonosen-welche-verantwortung-der-mensch-fuer-100.html>)





## Block 1 – Info: Factory Farming

Zoonoses and factory farming are closely linked, as the following information shows:

### Transporting animals and keeping them in confined spaces:

Viruses and other pathogens can spread very quickly due to the limited space during transport and in the holding facility.<sup>1</sup>

### Genetic similarity between the animals:

Animals are bred to "perform" better and better (milk production, laying performance, meat production). This type of breeding causes many problems. Among other things, the animals gene pool is becoming smaller and smaller. Because of the small gene pool within the breeds, the animals are more susceptible to infections, which in turn favours the spread of zoonoses.<sup>2</sup>

### Animal feed production destroys important habitats:

Animal feed is largely made up of soya. This is mainly grown in South America. Valuable rainforest areas are cut down for this purpose. This leads to the extinction of important and rare species, which in turn are central to the preservation of unimpaired biodiversity. If the biodiversity in these areas is damaged, zoonoses can also spread among the animals

more quickly. Due to the loss of habitat, these animals consequently have more frequent contact with humans, who then acquire the pathogens. In the worst-case scenario, this can lead to pandemics.

### Antibiotics favour resistance:

Animal illnesses become more frequent due to over-breeding and overcrowding. To prevent these, the animals are often treated with antibiotics. However, the excessive use of antibiotics in animal husbandry is fuelling the spread of multi-resistant germs that are immune to antibiotics. If humans become infected with these pathogens, no medicine to combat them exists.<sup>3</sup>

### Meat & milk alternatives:

Although the development towards the production of meat and milk alternatives (soya milk, etc.) is very positive, it has also impacted ecosystems. These products often contain soya and rainforest is cleared in order to cultivate this crop on plantations. However, the proportion used for this purpose is quite low. Most of the soya grown is used as animal feed.

### How does this affect me?

By buying certain foods from milk and meat production, we are supporting factory farming, feed production and, indirectly, the spread of zoonoses.

### What can be done?

One option is to consume fewer animal products. When shopping, you can also be sure to choose products from companies that keep animals in large enough areas. Information in this regard is provided on product labels. To form your own opinion, you can research what the label contents mean beforehand. Here are some examples of animal husbandry labels:



**Knowledge to go:**  
Rügenwalder Mühle sold more vegan and vegetarian products than traditional meat and sausage products in 2021 over the whole year.<sup>4</sup>

1&3: Wie der Mensch neue Pandemien produziert, mdr.de [How humans are producing new pandemics], (online)

<https://www.mdr.de/wissen/studie-zoonosen-durch-umweltzerstoerung-100.html#sprung2>, (accessed 20/09/2022)

2: Biodiversität: Agrarwendeistüberfällig [Biodiversity: Agricultural revolution is overdue], albert-schweitzer-stiftung.de, (online) <https://albert-schweitzer-stiftung.de/themen/umwelt/biodiversitaet>, (accessed 18.09.2022)

4: Rügenwalder Mühle wächst um knapp 13 Prozent [Rügenwalder Mühle grows by almost 13 per cent], rundschau.de, <https://www.rundschau.de/artikel/ruegenwalder-muehle-waechst-um-knapp-13-prozent> (accessed 17/09/2022)



## Block 1 – Info: Biodiversity Loss

Zoonoses and biodiversity loss are closely linked, as the following information shows:

### Loss of important plant and animal species

The destruction and modification of natural and species-rich habitats leads to the loss of important plant and animal species. This has a significant impact on biodiversity. Biodiversity is the interplay between genetic, species and ecosystem diversity.

A significant degree of interdependency as well as functional compatibility exists between highly sensitive systems such as the rainforest and the creatures that call it home. They often have a reciprocal relationship. For example, they may compete with each other for food and habitat, be together in a hunter-prey relationship or favour each other.<sup>1</sup> If biodiversity is disrupted, this would have an impact on the entire ecosystem of the Earth. Furthermore, biodiversity loss has an impact on the spread of zoonoses, as will become clearer in the next point (habitat impoverishment

### Impoverished habitat

Biodiversity loss is disrupting important ecosystems. The habitat becomes impoverished and is increasingly dominated by a small number of more undemanding species, also known as generalists. This increases the risk of transmission of infectious diseases in species-poor, disrupted habitats, as the spread of disease is favoured by the higher population densities of generalists.<sup>2</sup>

### Humans and animals are getting closer

Animals and humans are continuing to get closer due to habitat destruction, illegal poaching and wildlife trafficking, and the risk of zoonosis transmission is increasing. For example, primate habitats are being destroyed. They often visit plantations in search of food, but encounter humans instead.

### How does this affect me?

Highly sensitive ecosystems are often damaged by the cultivation of foodstuffs such as oranges, coffee, palm oil or cocoa on plantations located in rainforest areas. If biodiversity is thrown out of balance as a result of deforestation or species extinction, this can lead to the collapse of an entire system.

### What can be done?

One option is, when shopping, to make sure you buy products from companies that, for example, do not clear forests for new farmland or use fewer pesticides. Information in this regard is provided on product labels. To form your own opinion, you can research what the label contents mean beforehand. Here are some examples of labels for the preservation of the rainforest & biodiversity:



**Knowledge to go:**  
A law to ensure that products entering the internal EU market are not linked to forest destruction is to be enacted soon.<sup>3</sup>

1: Biodiversität – Lebensräume & Arten schützen [Biodiversity – Protecting habitats & species], Greenpeace.de, (online) <https://www.greenpeace.de/biodiversitaet>, (accessed 20/10/2022)

2: Biodiversität&Pandemie [Biodiversity&Pandemic], Regenwald-schuetzen.org, (online) <https://www.regenwald-schuetzen.org/regenwald-wissen/biodiversitaet-und-pandemie>, (accessed 8/10/2022)

3: Der Amazonas-Regenwald: das grüne Herz der Erde [The Amazon rainforest: the green heart of the earth], Greenpeace.de, (online) <https://www.greenpeace.de/biodiversitaet/waelder/waelder-erde/amazonas-regenwald>, (accessed 10/10/2022)



## Block 1 – Info: Wildlife Trafficking

Zoonoses and wildlife trafficking are closely linked, as the following information shows:

### Contact with humans

Many animals flee to plantations because their natural habitat has been destroyed. Sometimes animals are even used for labour on plantations, as can be seen in the example of the pig monkeys in Thailand.<sup>1</sup> Furthermore, illegal wildlife hunting brings up a range of issues. For example, there is a risk of endangered species becoming extinct. In addition, untrained hunters come in direct contact with wild animals while hunting. In these scenarios, viruses and other pathogens can be transmitted to humans or animals.

### Wildlife hunting disrupts ecosystems

Some wild animals are sold in western countries either as delicacies or as pets. Therefore, poaching poses a threat to some animal and plant species. If an ecosystem is missing one species, this can lead to a loss of biodiversity, as other species are dependent on the species being hunted. This in turn favours the spread of zoonoses.

### Selling wildlife at markets

Wild animals, both dead and alive, are often sold in confined spaces at large markets that have low hygiene standards. Pathogens can quickly be transmitted to humans. As the animals are sold on and/or the people move on to other places, the animals come in contact with different animals from other countries. This in turn increases the risk that the pathogens spread.

### Selling wild animals as pets

The illegal sale of wild animals also favours zoonoses, as the animals are usually traded internationally. This means that sick animals come in contact with humans and other animals during sale and transport. This can result in viruses and other pathogens spreading all over the world.

### How does this affect me?

Wild animals such as canaries, golden hamsters and parrots are often kept as pets.<sup>2</sup>

### What can be done?

Many organisations and associations are mobilising against illegal trade. Examples include: *Deutscher Tierschutzbund e. V.*, *International Fund for Animal Welfare (IFAW)*, *Pro Wildlife*, *World Wildlife Fund (WWF)*, *PETA*

### If you decide to buy a pet, note the following:

- Animals should be bought from legal animal breeders, pet shops or animal shelters in Germany
- Ensure species-appropriate husbandry
- Animals are often offered for sale on the internet. If you decide to buy an animal online, be extra careful. It is a good idea to contact the seller beforehand and find out how the animals are kept, where they come from and whether they have been vaccinated.

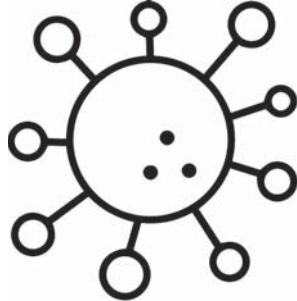
**Knowledge to go:**  
Alongside Frankfurt, Hamburg harbour and airport are hubs for illegal and inadequately controlled wildlife trafficking and their products in Germany<sup>1</sup>

1: Mit illegalen Wildtieren wird mehr Geld umgesetzt als mit Drogenhandel [More money is made from illegal wildlife than from drug trafficking], uni-hamburg.de (online)

<https://www.uni-hamburg.de/newsroom/adventskalender/14.html> (accessed 27/10/2022)

2: ZZf setzt sich für eine differenzierte Beurteilung des Wildtierhandels ein [ZZf advocates a differentiated assessment of wildlife trafficking], zza-online, (online)

<https://www.zza-online.de/artikelarchiv/personen/personen/article/zzf-setzt-sich-fuer-differenzierte-beurteilung-des-wildtierhandels-ein.html>, (accessed 22/10/2022)



**Zoonoses**  
**Block 1 – Opening Dilemma**  
**Worksheets**





## Block 1 – WS: What Are Zoonoses?

Watch the explanatory video and answer the questions.

**What are zoonoses and what are some examples?**

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**How are zoonoses transmitted?**

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**What favours zoonoses?**

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## **Block 1 – WS: Factory Farming I**

Do some online research and come up with your own answers to the questions.

**How does factory farming favour the occurrence of zoonoses?**

**Why does factory farming exist?**



## **Block 1 – WS: Biodiversity Loss I**

Do some online research and come up with your own answers to the questions.

**How does biodiversity loss favour the occurrence of zoonoses?**

**How does biodiversity loss occur?**



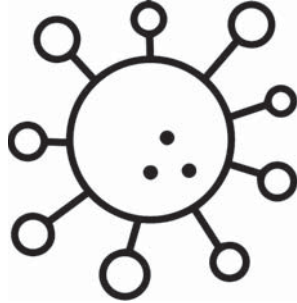
## **Block 1 – WS: Wildlife Trafficking I**

Do some online research and come up with your own answers to the questions.

**How does wildlife trafficking favour the occurrence of zoonoses?**

**Why does wildlife trafficking exist?**





**Zoonoses**  
**Block 2 – Knowledge**  
**Introduction**





## Introduction to Block 2 – Knowledge

### GOALS

The second block of the Zoonoses study unit focuses on the acquisition of new knowledge and personal positioning.

The aim is that the pupils

- independently identify relevant subject areas and research paths and research additional information based on these
- are capable of placing the information in the context of their everyday lives
- recognise and name complex interrelationships and problematic situations
- adopt their own positions on the topic

### SEQUENCE

#### Entry

10 min

- Recapitulation of the last block (10 min.)

#### Material

- ➔ Info: Vignette Block 2
- ➔ Info: Visualisation of transmission possibilities

#### Research phase II

60 min

- Research in small groups (25 min.)
- Creating information posters (25 min.)
- Art exhibition (10 min.)

#### Material

- ➔ WS: Factory farming II
- ➔ WS: Biodiversity loss II
- ➔ WS: Wildlife trafficking II
- ➔ Info: Factory farming / biodiversity loss / wildlife trafficking
- ➔ Info: Research tips
- ➔ Info: Research paths (factory farming, biodiversity loss, wildlife trafficking)
- ➔ Info: Zoonosi
- ➔ Poster design material

#### Positioning

15 min

- Spontaneous positioning (15 min.)

#### Material

- ➔ Info: Mini-vignettes

#### Conclusion

5 min

- Looking ahead to the next session



## Introduction to Block 2 – Knowledge

### ENTRY

#### Recapitulation of the last block

The story of Vignette Block 1 is summarised and the research findings from the last block are compiled. Vignette Block 2 is then read out or told.

- Info: Vignette
- Info: Visualisation of transmission possibilities
- Info: Zoonosis

### RESEARCH PHASE II

#### Research

The pupils are divided into six small groups – two groups each on biodiversity loss, factory farming and wildlife trafficking. They then research ways to minimise the risk of zoonoses and points of contact in everyday life in their respective focal areas. They make notes on this. Background information on the topics is provided on the information sheets (Factory farming Info, Biodiversity loss Info, Wildlife trafficking Info).

- WS: Factory farming II
- WS: Biodiversity loss II
- WS: Wildlife trafficking II
- Info: Zoonosis
- Info: Factory farming
- Info: Biodiversity loss
- Info: Wildlife trafficking

**Note:** Depending on the pupils' knowledge level, the WS: Research Tips can be used for support. Anyone who has difficulty finding an approach can use the Info: "Research paths" for inspiration.

- Info: Research tips
- Info: Research paths (factory farming, biodiversity loss, wildlife trafficking)

#### Creating information posters

The small groups create an information poster on their respective topic on which they visualise the findings of the two research phases.

The WS: research findings cluster can help with this.

- Posters, design materials (crayons, coloured paper, glue, scissors ...)

#### Art exhibition

The small groups present the posters with the findings of their research. Some time is allowed after each presentation to clarify any questions.

- Posters



## Introduction to Block 2 – Knowledge

### POSITIONING

#### Spontaneous positioning

Mini-vignettes are read out and the pupils have to spontaneously adopt a position on them in a short space of time. Pupils explain their position and reasons for it using examples. The decision-making process is then reflected upon.

➔ Info: Mini-vignette

#### Reflection questions

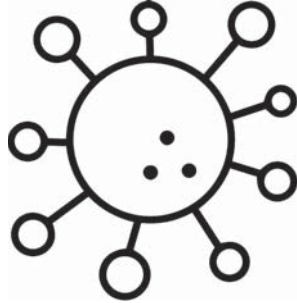
- When was the decision easy? When was the decision difficult? Why?
- What influence do other peoples' positions have on your own decision?

### CONCLUSION

#### Conclusion

**Looking ahead to the third block:**

The sequence for the next unit is looked over.



**Zoonoses**  
**Block 2 – Knowledge**  
**Information Sheets**





## Block 2 – Info: Vignette

### Vignette Block 1 – What are zoonoses?

#### Part 1 (Entry)

Friends Menina, Jens and Charly discuss the Covid-19 pandemic after school. Charly often uses the term "zoonoses" in her stories. Jens and Menina want to know what this means. Charly explains that zoonoses are pathogens that can be transmitted from animals to humans and vice versa. Zoonoses can develop from epidemics into pandemics. All three find the topic very interesting, but Jens has not understood the subject fully yet. "How do the transmissions actually occur?", he wonders. Charly can't remember exactly either. So the three friends watch an information video on the subject.

#### Part 2 (Research phase I)

The video aroused the interest of the three friends and they want to find out more about the topic. The information video talks about how the spread of zoonoses is favoured by factory farming, wildlife trafficking and biodiversity loss, among other things. But how exactly? To get to the bottom of the question, the three friends do some online research.

### Vignette Block 2 – Research

The three friends now have a better understanding of the areas in which zoonoses occur. But during their research, Menina wonders: "How do zoonoses actually affect our everyday lives, how do we potentially favour their spread through our behaviour and what can be done about it?" Off hand, the other two can't think of anything either. So they continue to research factory farming, wildlife trafficking and biodiversity loss and think about where they come in contact with these topics and what they can do about it. Charly, for example, finds out about the effects of factory farming on the spread of zoonoses. She suggests that they stop eating meat and, if they do eat it, make sure the animals are not kept in confined spaces. Menina, on the other hand, doesn't want to limit herself in her choice of food. However, she would like to reduce the risks in other ways by taking part in a protest against wildlife trafficking. Her idea is that, by doing this, she can inform more people about the connection between zoonoses and wildlife trafficking. Jens believes that the responsibility lies at political level. He believes that it would be more effective if laws were passed against wildlife trafficking and in favour of more species protection and nature reserves.



## Block 2 – Info: Vignette

### Vignette Block 3 – Positions

The three friends have finished their research on zoonoses for the time being. The last time they met, they discussed how the topic comes up in their everyday lives and what could be done locally and globally to prevent zoonoses. They came to the conclusion that zoonoses cannot really be prevented. Nevertheless, there are ways to minimise the risks of them spreading. To do this, we would have to change our way of life.

But is that even necessary? This sparks a heated discussion between the friends, as they all have slightly different opinions on the subject. Jens says: *"There's no point doing anything about zoonoses. The risk of new diseases developing has always existed and always will."* Charly responds: *"But covid was so terrible. I'm afraid something like that will happen again. I'm prepared to do everything in my power to make zoonoses a rare occurrence."* Menina's view is: *"I think it's important to do something about zoonoses, but I don't want to change my own behaviour too much."*

At some point, they realise that having different opinions is not a bad thing, because everyone perceives and assesses risks differently.

The three friends decide to respect each other's opinions, and each of them explains how they want to deal with the risks.

### Vignette Block 4 – Three detectives

After the last meeting, the three friends have become clearer on their positions, values and views on the subject of zoonoses. They want to share their newly acquired knowledge with others. Menina says: *"I have a YouTube account. Would you like to upload a video about zoonoses?"*

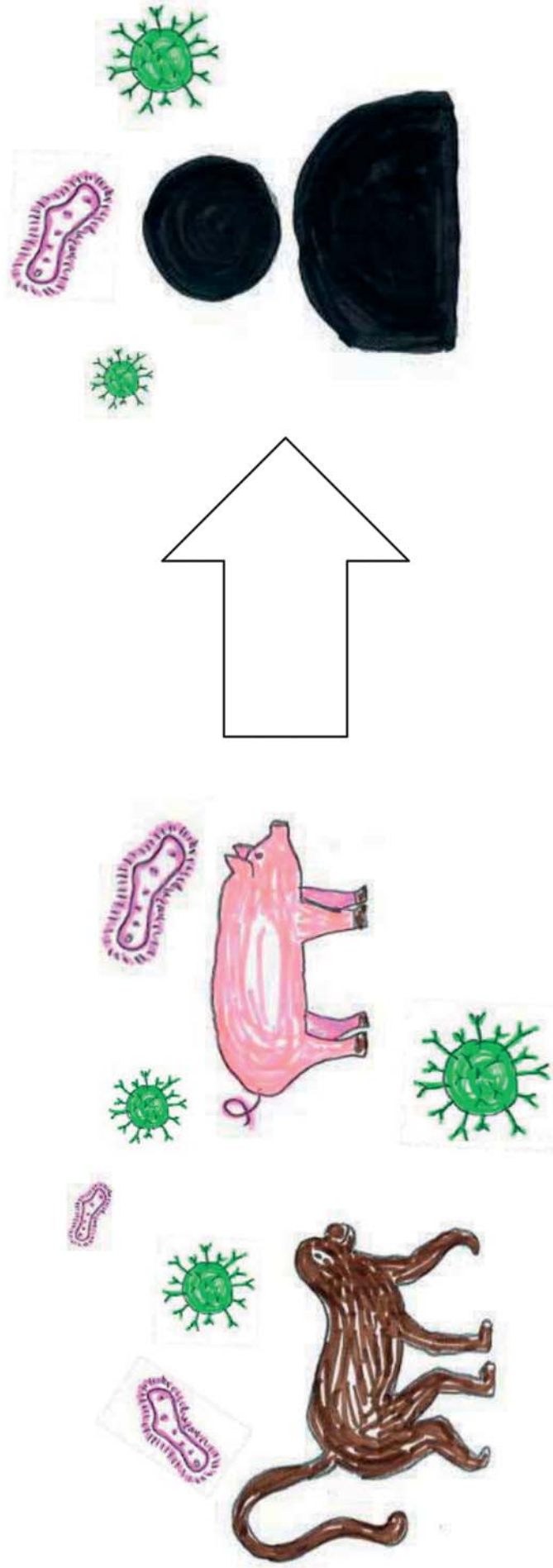
The other two think it's a great idea. Before they get to work, they decide who is going to take on which task. Charly doesn't feel comfortable in front of the camera. So she wants to use her smartphone to do the recording. Jens and Menina want to appear in the video. They decide to make the video in an interview format. Jens moderates and asks Menina questions.

They write and rehearse their lines together. Then they look for a place to shoot the video. They decide to use Menina's courtyard, which is relatively quiet and has plenty of light. It also has a white wall, which they imagine would be a good backdrop. After a few attempts, they have a flawless recording that everyone is happy with. They watch the completed video together once again and are delighted with the result.



## Block 2 – Info: Visualization of Transmission Possibilities

### Direct contact with an infected animal

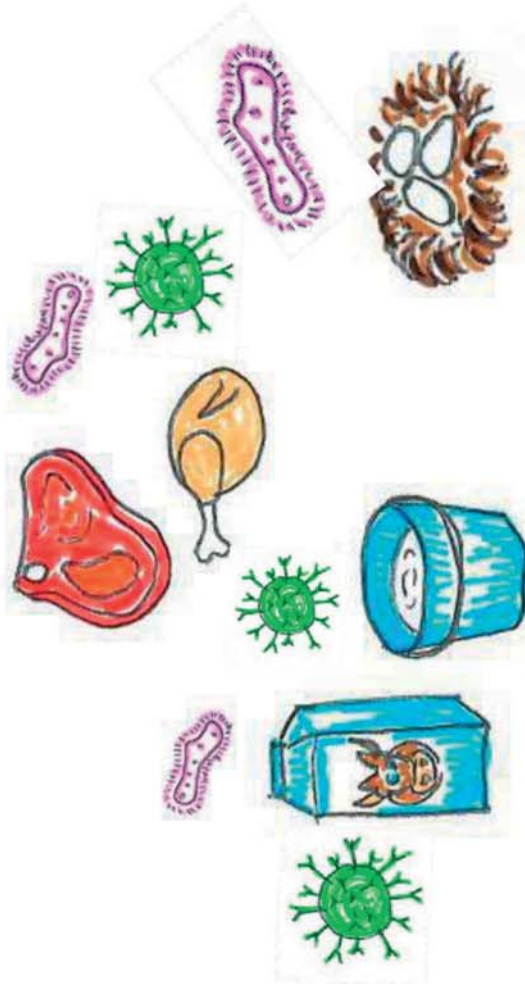
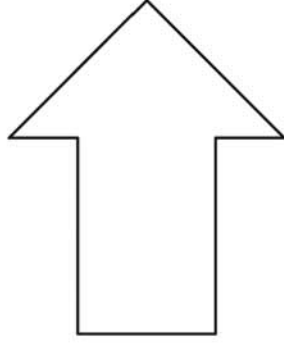
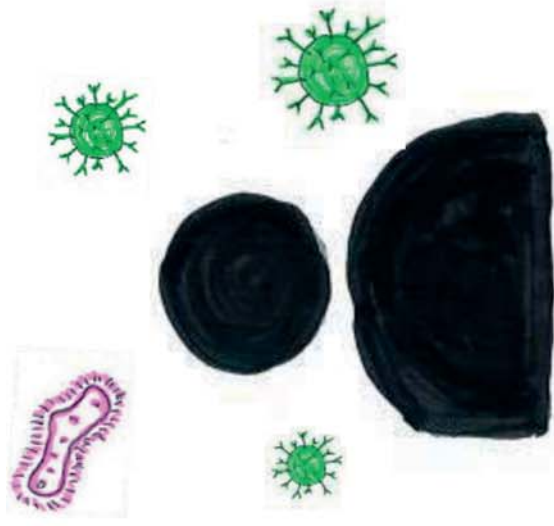






## Block 2 – Info: Visualization of Transmission Possibilities

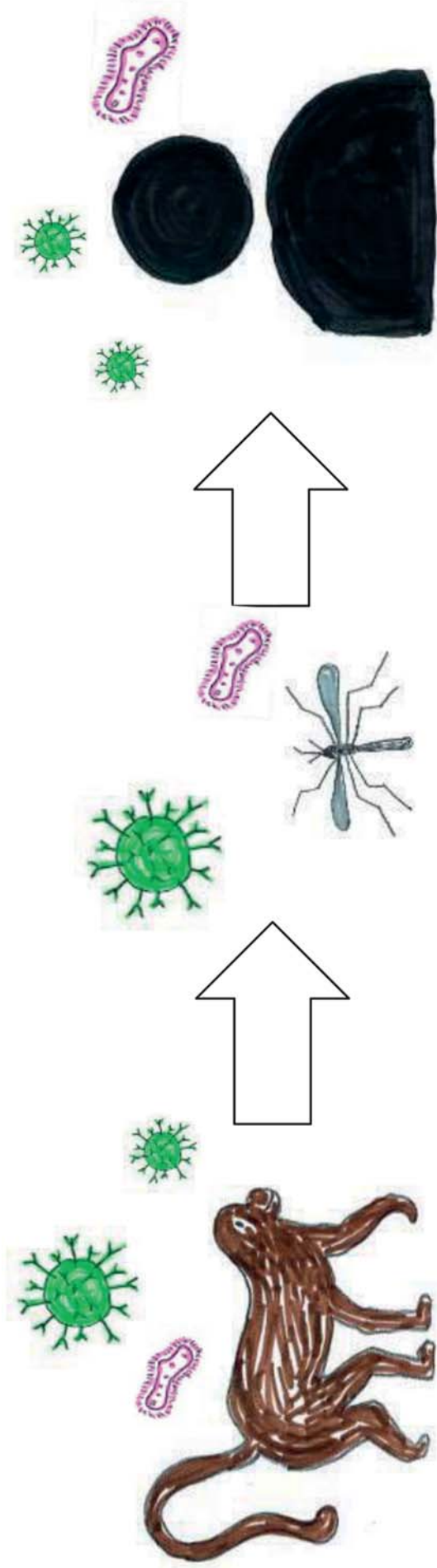
### Contact with animal products





## Block 2 – Info: Visualization of Transmission Possibilities

### Contact with vectors





## Block 2 – Info: Zoonoses

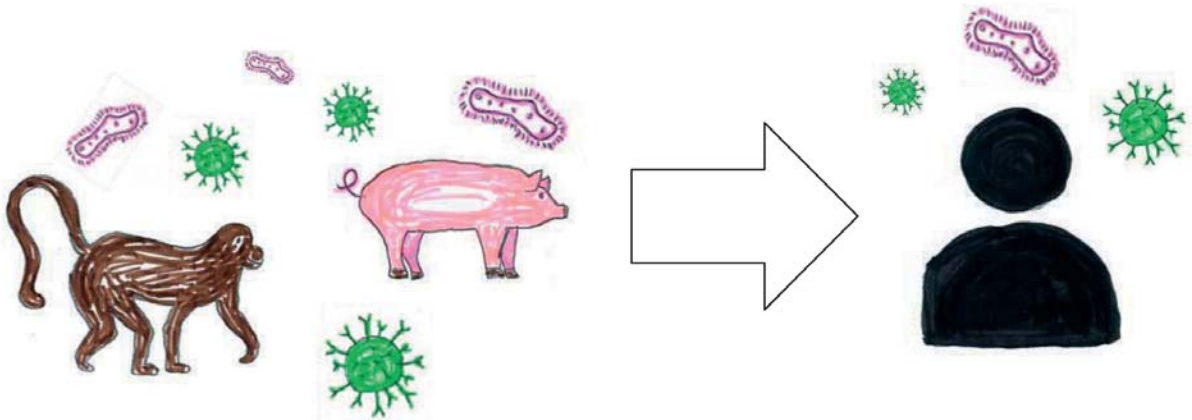
### What are zoonoses?

Zoonoses are diseases that are transmitted from animals to humans and from humans to animals. The term comes from the Greek and is made up of the words "zoon" (creature) and "nose" (disease). Almost 70% of all infectious diseases are zoonoses, such as bird flu, Ebola or the Sars-Cov-2 coronavirus. Pathogens can be viruses as well as fungi and bacteria.

### How does the transmission from animals to humans work?

#### Direct contact with an infected animal

If contact occurs between pathogen-infected farm or wild animals and humans, the pathogen can be transmitted to humans. For example, if the animal bites the human.



#### How does this affect us in our everyday life?

Encounters with wild animals can also occur in everyday life – and not just in the countryside. Wild animals live in the city, too. Foxes, hedgehogs, squirrels and rabbits are cute and often used to human contact and are therefore less shy. Nevertheless, touching or stroking them is something we should avoid doing.

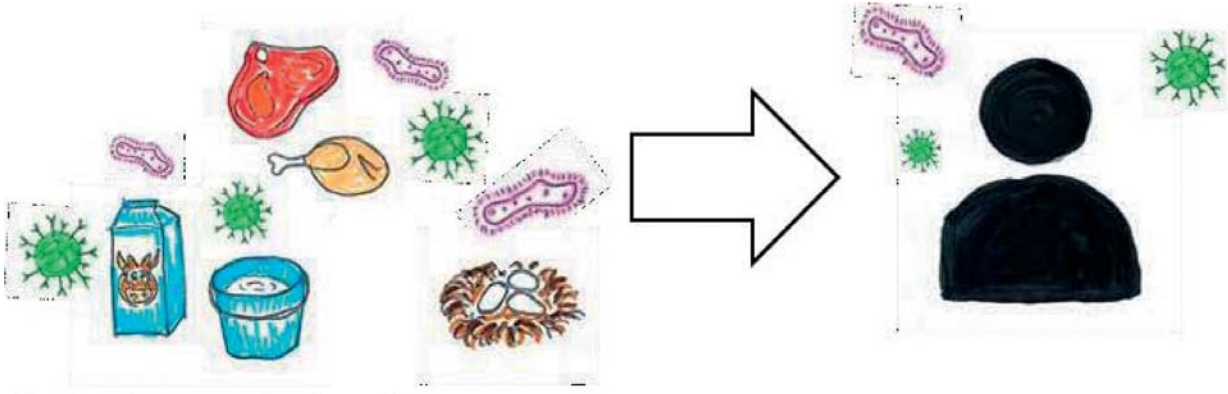
Nor should injured animals be taken home and treated. If you find an injured animal, maybe you can inform the forest ranger.



## Block 2 – Info: Zoonoses

### Contact with animal products

Animal products such as milk, meat or eggs from an infected animal can carry the pathogen. If humans come in contact with these products, for example during processing, humans can pick up the pathogen.

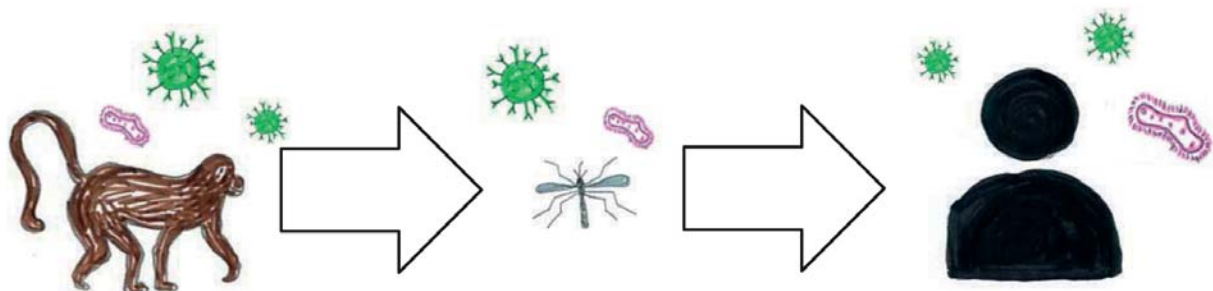


### How does this affect us in our everyday life?

Animal products from the supermarket or from a farm shop are safe in Germany, as strict regulations on hygiene and the handling of sick animals are in place. However, fruit can also carry the pathogen, for example, if it has come in contact with animal urine. This is why it is important to wash fruit you have harvested yourself thoroughly and not to pick berries from the very bottom of a bush, for example.

### Contact with vectors

Transmission is also possible through animals that are carrying the pathogen but are not themselves infected, i.e. vectors. These can be mosquitoes, for example, when they bite an infected animal, then carry the pathogen and transmit it to the next person they bite.



### How does this affect us in our everyday life?

You can spray yourself with insect repellent to avoid mosquito bites and tick bites. If you get bitten or stung regardless, monitoring is important. Severe swelling and redness may be signs of an infection. In this case, a doctor should take a look at it.



## Block 2 – Info: Factory Farming

Zoonoses and factory farming are closely linked, as the following information shows:

### Transporting animals and keeping them in confined spaces:

Viruses and other pathogens can spread very quickly due to the limited space during transport and in the holding facility.<sup>1</sup>

### Genetic similarity between the animals:

Animals are bred to "perform" better and better (milk production, laying performance, meat production). This type of breeding causes many problems. Among other things, the animals gene pool is becoming smaller and smaller. Because of the small gene pool within the breeds, the animals are more susceptible to infections, which in turn favours the spread of zoonoses.<sup>2</sup>

### Animal feed production destroys important habitats:

Animal feed is largely made up of soya. This is mainly grown in South America. Valuable rainforest areas are cut down for this purpose. This leads to the extinction of important and rare species, which in turn are central to the preservation of unimpaired biodiversity. If the biodiversity in these areas is damaged, zoonoses can also spread among the animals

more quickly. Due to the loss of habitat, these animals consequently have more frequent contact with humans, who then acquire the pathogens. In the worst-case scenario, this can lead to pandemics.

### Antibiotics favour resistance:

Animal illnesses become more frequent due to over-breeding and overcrowding. To prevent these, the animals are often treated with antibiotics. However, the excessive use of antibiotics in animal husbandry is fuelling the spread of multi-resistant germs that are immune to antibiotics. If humans become infected with these pathogens, no medicine to combat them exists.<sup>3</sup>

### Meat & milk alternatives:

Although the development towards the production of meat and milk alternatives (soya milk, etc.) is very positive, it has also impacted ecosystems. These products often contain soya and rainforest is cleared in order to cultivate this crop on plantations. However, the proportion used for this purpose is quite low. Most of the soya grown is used as animal feed.

### How does this affect me?

By buying certain foods from milk and meat production, we are supporting factory farming, feed production and, indirectly, the spread of zoonoses.

### What can be done?

One option is to consume fewer animal products. When shopping, you can also be sure to choose products from companies that keep animals in large enough areas. Information in this regard is provided on product labels. To form your own opinion, you can research what the label contents mean beforehand. Here are some examples of animal husbandry labels:



**Knowledge to go:**  
Rügenwalder Mühle sold more vegan and vegetarian products than traditional meat and sausage products in 2021 over the whole year.<sup>4</sup>

1&3: Wie der Mensch neue Pandemien produziert, mdr.de [How humans are producing new pandemics], (online)

<https://www.mdr.de/wissen/studie-zoonosen-durch-umweltzerstoerung-100.html#sprung2>, (accessed 20/09/2022)

2: Biodiversität: Agrarwende ist überfällig [Biodiversity: Agricultural revolution is overdue], albert-schweitzer-stiftung.de, (online) <https://albert-schweitzer-stiftung.de/themen/umwelt/biodiversitaet>, (accessed 18.09.2022)

4: Rügenwalder Mühle wächst um knapp 13 Prozent [Rügenwalder Mühle grows by almost 13 per cent], rundschau.de, <https://www.rundschau.de/artikel/ruegenwalder-muehle-waechst-um-knapp-13-prozent> (accessed 17/09/2022)



## Block 2 – Info: Biodiversity Loss

Zoonoses and biodiversity loss are closely linked, as the following information shows:

### Loss of important plant and animal species

The destruction and modification of natural and species-rich habitats leads to the loss of important plant and animal species. This has a significant impact on biodiversity. Biodiversity is the interplay between genetic, species and ecosystem diversity.

A significant degree of interdependency as well as functional compatibility exists between highly sensitive systems such as the rainforest and the creatures that call it home. They often have a reciprocal relationship. For example, they may compete with each other for food and habitat, be together in a hunter-prey relationship or favour each other.<sup>1</sup> If biodiversity is disrupted, this would have an impact on the entire ecosystem of the Earth. Furthermore, biodiversity loss has an impact on the spread of zoonoses, as will become clearer in the next point (habitat impoverishment

### Impoverished habitat

Biodiversity loss is disrupting important ecosystems. The habitat becomes impoverished and is increasingly dominated by a small number of more undemanding species, also known as generalists. This increases the risk of transmission of infectious diseases in species-poor, disrupted habitats, as the spread of disease is favoured by the higher population densities of generalists.<sup>2</sup>

### Humans and animals are getting closer

Animals and humans are continuing to get closer due to habitat destruction, illegal poaching and wildlife trafficking, and the risk of zoonosis transmission is increasing. For example, primate habitats are being destroyed. They often visit plantations in search of food, but encounter humans instead.

### How does this affect me?

Highly sensitive ecosystems are often damaged by the cultivation of foodstuffs such as oranges, coffee, palm oil or cocoa on plantations located in rainforest areas. If biodiversity is thrown out of balance as a result of deforestation or species extinction, this can lead to the collapse of an entire system.

### What can be done?

One option is, when shopping, to make sure you buy products from companies that, for example, do not clear forests for new farmland or use fewer pesticides. Information in this regard is provided on product labels. To form your own opinion, you can research what the label contents mean beforehand. Here are some examples of labels for the preservation of the rainforest & biodiversity:



**Knowledge to go:**  
A law to ensure that products entering the internal EU market are not linked to forest destruction is to be enacted soon.<sup>3</sup>

1: Biodiversität – Lebensräume & Arten schützen [Biodiversity – Protecting habitats & species], Greenpeace.de, (online) <https://www.greenpeace.de/biodiversitaet>, (accessed 20/10/2022)

2: Biodiversität&Pandemie [Biodiversity&Pandemic], Regenwald-schuetzen.org,(online) <https://www.regenwald-schuetzen.org/regenwald-wissen/biodiversitaet-und-pandemie>, (accessed 8/10/2022)

3: Der Amazonas-Regenwald: das grüne Herz der Erde [The Amazon rainforest: the green heart of the earth], Greenpeace.de, (online) <https://www.greenpeace.de/biodiversitaet/waelder/waelder-erde/amazonas-regenwald>, (accessed 10/10/2022)



## Block 2 – Info: Wildlife Trafficking

Zoonoses and wildlife trafficking are closely linked, as the following information shows:

### Contact with humans

Many animals flee to plantations because their natural habitat has been destroyed. Sometimes animals are even used for labour on plantations, as can be seen in the example of the pig monkeys in Thailand.<sup>1</sup> Furthermore, illegal wildlife hunting brings up a range of issues. For example, there is a risk of endangered species becoming extinct. In addition, untrained hunters come in direct contact with wild animals while hunting. In these scenarios, viruses and other pathogens can be transmitted to humans or animals.

### Wildlife hunting disrupts ecosystems

Some wild animals are sold in western countries either as delicacies or as pets. Therefore, poaching poses a threat to some animal and plant species. If an ecosystem is missing one species, this can lead to a loss of biodiversity, as other species are dependent on the species being hunted. This in turn favours the spread of zoonoses.

### Selling wildlife at markets

Wild animals, both dead and alive, are often sold in confined spaces at large markets that have low hygiene standards. Pathogens can quickly be transmitted to humans. As the animals are sold on and/or the people move on to other places, the animals come in contact with different animals from other countries. This in turn increases the risk that the pathogens spread.

### Selling wild animals as pets

The illegal sale of wild animals also favours zoonoses, as the animals are usually traded internationally. This means that sick animals come in contact with humans and other animals during sale and transport. This can result in viruses and other pathogens spreading all over the world.

### How does this affect me?

Wild animals such as canaries, golden hamsters and parrots are often kept as pets.<sup>2</sup>

### What can be done?

Many organisations and associations are mobilising against illegal trade. Examples include: *Deutscher Tierschutzbund e. V.*, *International Fund for Animal Welfare (IFAW)*, *Pro Wildlife*, *World Wildlife Fund (WWF)*, *PETA*

### If you decide to buy a pet, note the following:

- Animals should be bought from legal animal breeders, pet shops or animal shelters in Germany
- Ensure species-appropriate husbandry
- Animals are often offered for sale on the internet. If you decide to buy an animal online, be extra careful. It is a good idea to contact the seller beforehand and find out how the animals are kept, where they come from and whether they have been vaccinated.

**Knowledge to go:**  
Alongside Frankfurt, Hamburg harbour and airport are hubs for illegal and inadequately controlled wildlife trafficking and their products in Germany<sup>1</sup>

1: Mit illegalen Wildtieren wird mehr Geld umgesetzt als mit Drogenhandel [More money is made from illegal wildlife than from drug trafficking], uni-hamburg.de (online)

<https://www.uni-hamburg.de/newsroom/adventskalender/14.html> (accessed 27/10/2022)

2: ZZf setzt sich für eine differenzierte Beurteilung des Wildtierhandels ein [ZZF advocates a differentiated assessment of wildlife trafficking], zza-online, (online)

<https://www.zza-online.de/artikelarchiv/personen/personen/article/zzf-setzt-sich-fuer-differenzierte-beurteilung-des-wildtierhandels-ein.html>, (accessed 22/10/2022)



## 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 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).
- are written in a factual and objective manner.
- comprise subjective points of view, such as opinions and evaluations.
- are current.
- 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.

### Tip 3: Take a look outside of 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.<sup>1</sup>

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 Google search for your purposes

By using various little search tricks in your Google search, you can reach your goal in a faster and better way. 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/richtiq-recherchieren-lernen-referate\\_id\\_1763033.html](https://www.focus.de/familie/lernen/lernhilfen/richtiq-recherchieren-lernen-referate_id_1763033.html)

<sup>1</sup> <https://www.test.de/Suchmaschinen-im-Test-Eine-schlaegt-Google-5453360-5453367/>





## Block 2 – Info: Research Paths – Zoonoses & Factory Farming

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

### What is the connection between zoonoses and factory farming?

Search terms: *Livestock farming zoonoses connection, animal consumption pandemics, effects of livestock farming pandemics/zoonoses*

#### Examples

Albert Schweitzer Foundation → Search field → How the consumption of animal products is leading to the next pandemic

(<https://albert-schweitzer-stiftung.de/aktuell/tierkonsum-pandemie>)

ndr.de → Search field → Factory farming and zoonoses → Podcast: Virus danger from the barn?

(<https://www.ndr.de/nachrichten/info/41-Viren-Gefahr-aus-dem-Stall,audio1003036.html>)

Google.de → Search field → Factory farming and zoonoses → Article: Antibiotic resistance: What roles does the environment play?

(<https://gesund.bund.de/antibiotika-in-der-umwelt>)

### What solutions have been found so far with regard to factory farming and zoonoses?

Search terms: *Effects of livestock farming zoonoses, livestock farming solutions, Zoonoses, zoonoses political measures, preventing zoonoses*

#### Examples

Boell.de → Search field → Factory farming and zoonoses → Too much, too big, too cramped - Meat production and global health

<https://www.boell.de/de/2020/05/19/zu-viel-zu-gross-zu-eng-fleischproduktion-und-globale-gesundheit>

google.de → What solutions have been found so far with regard to factory farming and zoonoses? → bmel.de → Paths towards socially acceptable livestock farming

[https://www.bmel.de/SharedDocs/Downloads/DE/\\_Ministerium/Beiraete/agrarpolitik/GutachtenNutztierhaltung-Kurzfassung.pdf?3F\\_\\_blob%3DpublicationFile%26v%3D2](https://www.bmel.de/SharedDocs/Downloads/DE/_Ministerium/Beiraete/agrarpolitik/GutachtenNutztierhaltung-Kurzfassung.pdf?3F__blob%3DpublicationFile%26v%3D2)



## Block 2 – Info: Research Paths – Zoonoses & Biodiversity Loss

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

### What is the connection between zoonoses and biodiversity?

Search terms: *Biodiversity zoonoses connection, biodiversity zoonoses*

Examples

regenwald-schuetzen.org → Rainforest knowledge → Biodiversity and pandemic

(<https://www.regenwald-schuetzen.org/regenwald-wissen/biodiversitaet-und-pandemie>)

wwf.de → Search field → Zoonoses & biodiversity

(<https://www.wwf.de/suche?s%5Bq%5D=Zoonosen+%26+Biodiversitaet>)

deutschlandfunk.de → Search field → Zoonoses & biodiversity → Podcast: Biodiversity expert - Wildlife markets are not the only places where zoonoses occur

(<https://www.boell.de/de/2020/05/19/zu-viel-zu-gross-zu-eng-fleischproduktion-und-globale-gesundheit>)

### What solutions are there and what can you do yourself to reduce the spread of zoonoses?

Search terms: *Biodiversity zoonoses connection, prevention of zoonoses through biodiversity, Preventing zoonoses*

Examples

zdf.de → Search field → Zoonoses → Video: Zoonoses - Is covid just the beginning?

(<https://www.zdf.de/wissen/nano/krank-durch-tiere-102.html>)

bmz.de → Search field → Holistic solutions for the health of humans, animals and the environment

(<https://www.bmz.de/de/themen/biodiversitaet/gesundheit>)



## Block 2 – Info: Research Paths – Zoonoses & Wildlife Trafficking

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

### What is the connection between zoonoses and wildlife trafficking?

Search terms: *Wildlife trafficking zoonoses connection, wildlife trafficking zoonoses effects*

#### Examples

deutschlandfunk.de → Search field → Wildlife trafficking - Dangers for humans and animals → Podcast

(<https://www.deutschlandfunk.de/wildtierhandel-gefahren-fuer-mensch-und-tier-100.html>)

deutschlandfunk.de → Search field → Wildlife trafficking - Dangers for humans and animals → Podcast

(<https://www.deutschlandfunk.de/wildtierhandel-gefahren-fuer-mensch-und-tier-100.html>)

### What solutions are there and what can be done at individuals level to reduce the spread of zoonoses?

Search terms: *Wildlife trafficking zoonoses connection, zoonoses prevention, reducing/minimising zoonoses*

#### Examples

giz.de → Search field → Interview: What does wildlife protection have to do with human health?

(<https://www.giz.de/de/mediathek/103055.html>)

bmu.de → Search field → Reducing health risks in wildlife trafficking

(<https://www.bmu.de/pressemitteilung/welt-zoonosentag-internationale-allianz-soll-gesundheitsrisiken-im-handel-mit-wildtieren-reduzieren>)

International.nabu.de → Species conservation → Pandemics & wildlife trafficking

(<https://international.nabu.de/artenschutz/pandemien/index.html>)



## Block 2 – Info: Mini-vignettes

Maxi watched a documentary on zoonoses and found out that factory farming contributes to the spread of zoonoses. He wonders if he wants to continue eating animal products or whether he should give them up. Maxi actually really enjoys eating meat and likes drinking milk too. He imagines it would be very difficult to give them up. He then weighs up the pros and cons. What do you think? If you were Maxi, would you give up animal products or not?

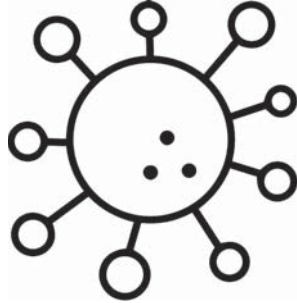
The 8a class at Oderberg Comprehensive School has a terrarium in their classroom. Kurt the tortoise lived in it until recently. Unfortunately, it died due to old age. The pupils of 8a and their class teacher are now discussing whether they want to get a new turtle. Turtles are sometimes caught in the wild and sold. In biology lessons, the class learnt that wildlife trafficking favours the spread of zoonoses. What can the class do now? Should they get a new turtle or not? What do you think?

Luna and Erik arrange to meet up for a protest against wildlife trafficking. After the protest, Erik wonders if it made any sense at all and whether they had any impact. He says: *"In the end, it's the politicians who decide what gets implemented and what doesn't."* What do you think? Erik asks whether his commitment helps make a difference. Luna says: *"Some things take time and perseverance until a change happens."* What do you think? Would you go to the protest or not? Would you perhaps try to represent your viewpoint in a different way?

A city in Myanmar wants to build new apartments on the outskirts. Rainforest has to be cleared for this. On the one hand, there is a housing shortage and, on the other hand, nature has to be protected in order to preserve biodiversity and prevent zoonoses. How do you see this? Would you rather cut down the forest to help combat the housing shortage or would you choose not to build the apartments and thus protect biodiversity?

Alev was on holiday with his parents. While travelling, he noticed that many locals eat wild animals. His parents explain to him that this is part of the country's culture. However, Alev had learned at school before going on holiday that wildlife hunting favours the spread of zoonoses. Among other things, because contact between humans and animals is getting closer and closer. What do you think, should there be a ban on wildlife hunting, even though this is part of the culture in some countries?

Lena's favourite animals are canaries and she has wanted to have one as a pet for a long time. Her parents want to fulfil this wish for her 12th birthday and do some online research. They quickly realise that some of the animals on offer are being sold illegally. They begin to doubt whether they can fulfil Lena's wish. What do you think? Should Lena's parents buy a canary online or not?



**Zoonoses**  
**Block 2 – Knowledge**  
**Worksheets**





## **Block 2 – WS: Factory Farming II**

Do some online research and come up with your own answers to the questions.

**Where do we encounter factory farming in everyday life?**

**What can be done to minimise the risk of zoonoses locally and globally?**



## **Block 2 – WS: Biodiversity Loss II**

Do some online research and come up with your own answers to the questions.

**Where do we encounter biodiversity loss or its causes in everyday life?**

**What can be done to minimise the risk of zoonoses locally and globally?**



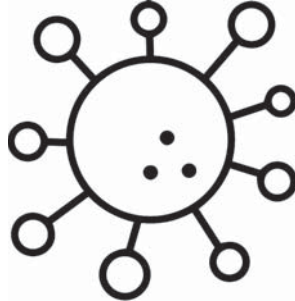
## **Block 2 – WS: Wildlife Trafficking II**

Do some online research and come up with your own answers to the questions.

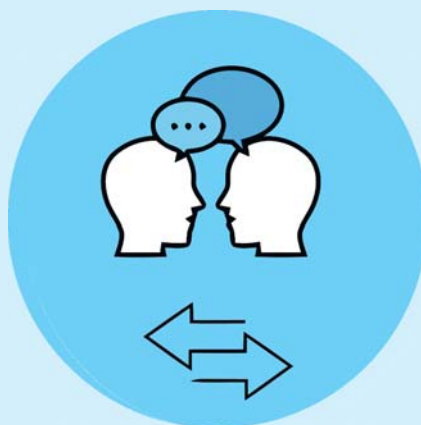
**Where do we encounter wildlife trafficking in everyday life?**

**What can be done to minimise the risk of zoonoses locally and globally?**





**Zoonoses**  
**Block 3 – Positioning**  
**Introduction**





## Introduction to Block 3 – Positioning

### GOALS

The third block of the Zoonoses 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
- adopt different perspectives and discuss them with each other
- analyse and reflect on the discussion and the various arguments
- adopt a position based on the discussion and exchange different reasons and motives for the decision
- perceive and justify shifts in their positioning

### SEQUENCE

#### Entry

5 min

- Vignette Block 3 (5 min.)

#### Material

- ➔ Info: Vignette Block 3

#### Discussion

55 min

- Preparation phase (10 min.)
- Phase I – Adopting a perspective (15 min.)
- Break (5 min.)
- Discussion phase II – One's own perspective (15 min.)
- Evaluation (10 min.)

#### Material

- ➔ Info: Fishbowl
- ➔ Info: Moderation – Goal and discussion sequence
- ➔ Info: Moderation – Moderation stimuli and questions
- ➔ WS: Role cards (Charly, Jens, Menina)
- ➔ Info: Ball bearing

#### Second positioning/ Mood

25 min

- Finding your own position (10 min.)
- Positioning in the room (5 min.)
- Exchange about the positions (10 min.)

#### Material

- ➔ WS: Finding your own position
- ➔ Info: Finding your own position
- ➔ WS: Single-sentence positioning
- ➔ WS: What influences my decision?
- ➔ WS: Role positions

#### Conclusion

5 min

- Looking ahead to the next block (5 min.)
- Info: Moderation – Goal and discussion sequence



## Introduction to Block 3 – Positioning

### ENTRY

#### Vignette

The first two parts of the vignette (blocks 1 and 2) are briefly summarised, then the part of the third block is read out.

- ➔ Info: Moderation – Moderation stimuli and questions
- ➔ Info: Moderation – Goal and discussion sequence

### DISCUSSION

The discussion is conducted using the fishbowl method (Moderation Info) and is divided into two phases. In phase I – "Adopting a perspective", the pupils take on a role and discuss from the perspective of a character from the vignette. In discussion phase II – "One's own perspective", they leave the roles again and discuss from their own personal perspective.

#### Preparation phase

**Stimulus:** The fishbowl method and the discussion process are explained. The pupils then form small groups and prepare for the discussion.

##### 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.

- ➔ Info: Fishbowl method

##### Small groups: Assuming the role

The pupils form small groups of three to four people who assume the same role. Working together, they put themselves in the role and consider arguments in favour of the respective position from the character's perspective. The arguments are noted on the WS: Role card.

- ➔ WS: Role card (Charly, Jens, Menina)

**Reorganisation:** The room is then rearranged and prepared for the fishbowl discussion.

- ➔ Info: Fishbowl



## Introduction to Block 3 – Positioning

### Discussion phase I – Adopting a perspective

In the first phase, the pupils adopt the perspective of one of the characters from the vignette during the discussion. The discussion follows the moderation questions and stimuli.

- ➡ Info: Moderation – Moderation stimuli and questions
- ➡ Info: Moderation – Goal and discussion sequence

### Break

Before the second round begins, a short break takes place so that the pupils can re-focus their thoughts and transition out of the role. This is done by playing the Count-to-10 game.

#### Count-to-10

The pupils stand in a circle. The task is to count from 1 to 10 as quickly as possible, without any prior agreements being made. Each person can only say a number once. If a number is repeated or is uttered at the same time, the count has to be started again from the beginning.

### Discussion phase II – One's own perspective

In the second phase, the pupils discuss from their own perspective. The discussion follows the moderation questions and stimuli.

- ➡ Info: Moderation – Moderation stimuli and questions
- ➡ Info: Moderation – Goal and discussion sequence

### Evaluation – Ball bearing

For the evaluation, an exchange is first carried out in alternating pairs in line with the key questions using the ball bearing method. The findings are then presented to the large group as examples.

- ➡ Info: Ball bearing

#### Key questions

- How did the discussion go?
- Which was easier: discussing from the role's perspective or from your own? Why?
- What was easy to discuss? What was difficult?
- Which arguments were particularly convincing, which were not?
- Which argument triggered something in you?



## Introduction to Block 3 – Positioning

### SECOND POSITIONING/MOOD

#### Finding your own position

After the discussion and exchange, the pupils adopt a position on the risk of zoonoses from different perspectives. The position is noted on the WS: Single-sentence positioning.

**Key question:** How does the risk of zoonoses affect you? Are you prepared to do something to minimise the risk?

- Info: Finding your own position
- WS: Finding your own position
- WS: Single-sentence positioning

#### Positioning in the room

The positions of the discussion roles are placed in three different locations in the room or attached to the wall. The pupils distribute their single-sentence positions in relation to these and place them near the position that is closest to their own.

- Info: Role position

#### Exchange about the positions

The pupils work on the WS: What influences my decision?

They then hold an exchange on their positions in line with the key questions.

- WS : What influences my decision?

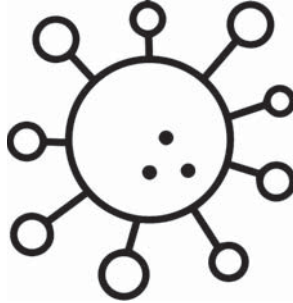
#### Key questions

- Why did I make this decision?
- What reasons are important to me in doing so?
- What or who influences my decision?
- How do I feel about the position?

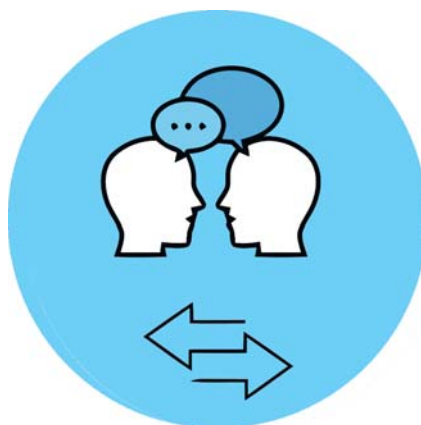
### CONCLUSION

#### Looking ahead to the fourth block:

The sequence for the next unit is looked over.



**Zoonoses**  
**Block 3 – Positioning**  
**Information Sheets**





## Block 3 – Info: Vignette

### Vignette Block 1 – What are zoonoses?

#### Part 1 (Entry)

Friends Menina, Jens and Charly discuss the Covid-19 pandemic after school. Charly often uses the term "zoonoses" in her stories. Jens and Menina want to know what this means. Charly explains that zoonoses are pathogens that can be transmitted from animals to humans and vice versa. Zoonoses can develop from epidemics into pandemics. All three find the topic very interesting, but Jens has not understood the subject fully yet. "How do the transmissions actually occur?", he wonders. Charly can't remember exactly either. So the three friends watch an information video on the subject.

#### Part 2 (Research phase I)

The video aroused the interest of the three friends and they want to find out more about the topic. The information video talks about how the spread of zoonoses is favoured by factory farming, wildlife trafficking and biodiversity loss, among other things. But how exactly? To get to the bottom of the question, the three friends do some online research.

### Vignette Block 2 – Research

The three friends now have a better understanding of the areas in which zoonoses occur. But during their research, Menina wonders: "How do zoonoses actually affect our everyday lives, how do we potentially favour their spread through our behaviour and what can be done about it?" Off hand, the other two can't think of anything either. So they continue to research factory farming, wildlife trafficking and biodiversity loss and think about where they come in contact with these topics and what they can do about it. Charly, for example, finds out about the effects of factory farming on the spread of zoonoses. She suggests that they stop eating meat and, if they do eat it, make sure the animals are not kept in confined spaces. Menina, on the other hand, doesn't want to limit herself in her choice of food. However, she would like to reduce the risks in other ways by taking part in a protest against wildlife trafficking. Her idea is that, by doing this, she can inform more people about the connection between zoonoses and wildlife trafficking. Jens believes that the responsibility lies at political level. He believes that it would be more effective if laws were passed against wildlife trafficking and in favour of more species protection and nature reserves.



## Block 3 – Info: Vignette

### Vignette Block 3 – Positions

The three friends have finished their research on zoonoses for the time being. At the last meeting, they discussed how the topic occurs in their everyday lives and what could be done locally and globally to prevent zoonoses. They came to the conclusion that zoonoses cannot really be prevented. Nevertheless, there are ways to minimise the risks of them spreading. To do this, we would have to change our way of life.

But is that even necessary? This sparks a heated discussion between the friends, as they all have slightly different opinions on the subject. Jens says: *"There's no point doing anything about zoonoses. The risk of new diseases developing has always existed and always will."* Charly responds: *"But covid was so terrible. I'm afraid something like that will happen again. I'm prepared to do everything in my power to make zoonoses a rare occurrence."* Menina's view is: *"I think it's important to do something about zoonoses, but I don't want to change my own behaviour too much."*

At some point, they realise that having different opinions is not a bad thing, because everyone perceives and assesses risks differently.

The three friends decide to respect each other's opinions, and each of them explains how they want to deal with the risks.

### Vignette Block 4 – Three detectives

After the last meeting, the three friends have become clearer on their positions, values and views on the subject of zoonoses. They want to share their newly acquired knowledge with others. Menina says: *"I have a YouTube account. Would you like to upload a video about zoonoses?"*

The other two think it's a great idea. Before they get to work, they decide who is going to take on which task. Charly doesn't feel comfortable in front of the camera. So she wants to use her smartphone to do the recording. Jens and Menina want to appear in the video. They decide to make the video in an interview format. Jens moderates and asks Menina questions.

They write and rehearse their lines together. Then they look for a place to shoot the video. They decide to use Menina's courtyard, which is relatively quiet and has plenty of light. It also has a white wall, which they imagine would be a good backdrop. After a few attempts, they have a flawless recording that everyone is happy with. They watch the completed video together once again and are delighted with the result.

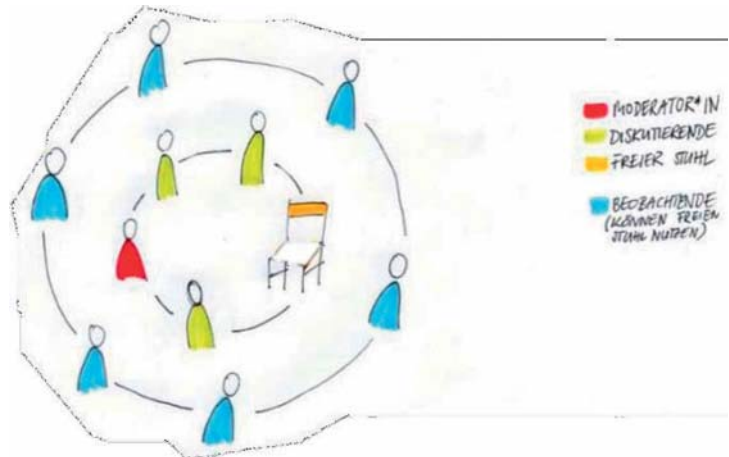




## Block 3 – Info: Fishbowl

### 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

#### Reorganisation

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

### Discussion

#### Moderation

- The teacher moderates the discussion.

#### 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.

#### Outer circle

- The pupils in the outer 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: Moderation – Discussion Sequence & Stimuli

### Goal of the discussion

The discussion is the core element of the third block. In "adopting a perspective", the first discussion phase, the pupils put themselves in a prescribed role (WS: Role card), develop arguments in favour of the respective position (discussion preparation) and discuss them. In the process, the various issues associated with the spread of zoonoses, the risks and the pupils' everyday world are brought into the discussion, as well as possibilities for minimising risks. The question of practicability also plays a role here, as does the individual weighting and prioritisation of individual aspects. The aim is not to develop a concrete result or a group consensus.

### Discussion sequence

#### Discussion phase I – "Adopting a perspective":

After an opening stimulus, the pupils discuss from the perspective of their role. First, the inner circle begins and the pupils present the position of the role and the justifications for it. The circle is then opened and the arguments in favour of the positions are discussed. The pupils may enter and leave the discussion at will via the available seat.

#### Break:

The pupils leave the roles again. The "Count-to-10" game is designed to help with this.

#### Discussion phase II – "One's own perspective":

Similar to the first discussion phase, after the opening stimulus, the pupils firstly present their position and justifications for it in the discussion circle. The circle is then opened and the pupils can switch to the available seat.



## Block 3 – Info: Moderation – Discussion Sequence & Stimuli

### Opening the discussion phase

An opening stimulus should provide the space for presenting the positions as well as arguments and justifications and an outlook on the sequence of the discussion.

#### Moderation stimulus:

*You were given various role cards at the beginning of this lesson. Now adopt the various positions and find reasons why Menina, Jens and Charly think the way they do about zoonoses. Next, we want to hold an exchange about this.*

*We will do this by having an initial round, in which representatives of the different roles sit in the discussion circle and present the attitudes and possible justifications of the three friends. Then the circle will be opened up and you can take the available space in the discussion circle if you want to say something. Anyone who has said what they wanted to say goes back into the middle circle and makes room for others. It is important that you all stay in your roles and argue from that position.*

### Discussion phase I – Adopting a perspective

One person from each role sits in the discussion circle. The justifications for the different role positions, which the pupils have previously explored using the WS: Role card, are presented in turn. After the pupils have exchanged their opinions in the inner circle, the circle is opened to everyone else, and the pupils can enter and leave the discussion at will via the available seat. The panellists continue to speak in their roles.

#### Moderation stimulus:

*I'd like to welcome the representatives of the various roles to the discussion circle. We will now take turns and each of you can present the main arguments in favour of the attitude of the roles assigned to you and briefly discuss them from your role.*

After the pupils in the inner circle have held a brief exchange, the circle is opened to everyone else, and the pupils can enter and leave the discussion at will via the available seat. The panellists speak in their assigned roles.

*Many thanks to the representatives of the various roles. 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 still speak from your roles.*

**Why do some roles decide to act as described in the vignette?**

**What reasons could have led to the risk being assessed differently in each case?**

**How practicable do you find the various arguments?**

**What do you think of the approach of the different roles? Could there be other positions?**

**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.



## Block 3 – Info: Moderation – Discussion Sequence & Stimuli

### Break

The pupils leave their roles again. The "Count-to-10" game should help them here.

### Count-to-10

The pupils stand in a circle. The task is to count from 1 to 10 as quickly as possible, without any prior agreements being made. Each person can only say a number once. If a number is repeated or is uttered at the same time, the count has to be started again from the beginning.

### Discussion phase II – One's own perspective

After the short break, volunteers sit in a discussion circle. One by one, they present their own positions on managing the risks of zoonoses.

#### Moderation stimulus:

*I'd like to welcome you back to the discussion round. We will now take turns and each of you can present your own opinion or position on managing the risks of zoonoses. Afterwards, there will be some time to exchange views with each other in the inner circle of the discussion group. You will no longer speak from your roles, but for yourselves.*

After the pupils have exchanged their opinions in the inner circle, the circle is opened to everyone else, and the pupils can enter and leave the discussion at will via the available seat. The panellists now speak for themselves and no longer from the roles.

*Many thanks to the volunteers who have taken the courageous step of sharing their own position on the subject of risks and zoonoses. 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 no longer speak from your roles, but for yourselves.*

**How does the risk of zoonoses affect me?**  
**What can be done to reduce the risk of zoonoses?**  
**What do I want to do about the risk of zoonoses?**  
**Do I want to do anything at all about it?**  
**What am I prepared to change in my everyday life?**  
**What do I want to do without or what can't I do without?**

**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.



## Block 3 – Info: Moderation – Discussion Sequence & Stimuli

### Open questions

Open questions can be used to encourage panellists to elaborate on their points of view or to encourage them to talk and to think more deeply about the topic.

#### Examples of open questions:

What ideas/perceptions do you have?  
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 ...?  
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: Ball Bearing – Discussion Evaluation

### Procedure

#### Ball bearing

The group forms two circles of the same size – an inner circle and an outer circle. The pupils stand in such a way that they have a counterpart in the other circle. The inner circle faces outwards and the outer circle faces inwards. The pairs formed in this way discuss the first question. The conversations end after approx. 30 seconds, and the inner circle moves two people to the left, while the outer circle stays in place. The newly formed pairs discuss the second question and, after 30 seconds, the outer circle moves three steps to the right. This process is repeated until all questions have been discussed. Which circle, how many places and in which direction can be varied as desired. However, the discussion pairs should not double up.

#### Preparation:

- Create space for the two circles

#### Material

- Key questions
- Stopwatch/clock

### Key questions

- How did the discussion go?
- Which was easier, discussing from the role's perspective or from your own? Why?
- What was easy to discuss? What was difficult?
- Which arguments were particularly convincing, which were not?
- Which argument triggered something in you?



## Block 3 – Info: Finding Your Own Position

The purpose of the WS: "Finding your own position" is engage with a particular aspect of zoonoses in greater detail and thus become clearer on your position. An example of how the WS: "Finding your own position" can be worked on is provided on this information sheet.

### EXAMPLE

#### **How does the risk of zoonoses affect me?**

If zoonoses continue to spread in the future, this will have a significant impact on our everyday lives. Among other things, our working methods will change and social contacts will become more difficult. In addition, humanity has created conditions that are detrimental to our environment and therefore increase the risk of zoonoses spreading. In order to protect our environment and reduce the risk of zoonoses spreading, many people would have to change their lifestyles. Therefore, the risk of zoonoses affects us all.

#### **What can be done to reduce the risk of zoonoses?**

As zoonoses are a natural process, the risk of zoonoses cannot be prevented, only minimized. By keeping animals in too confined a space, germs can quickly jump from one host to another. Animal products can therefore be avoided to reduce the risk of spreading. You can also go on demonstrations and draw politicians' attention to the problem.

#### **What do I want to do about the risk of zoonoses? Do I want to do anything at all?**

Yes, I would like to help reduce the risk of zoonoses spreading. Nevertheless, I feel a bit overwhelmed because there is no "one solution", but rather the risk can only be reduced.

#### **What am I prepared to change in my everyday life? What do I want to do without, or can't do without?**

I think I am already doing a lot to reduce the risk of zoonoses. I've been vegan for a few years now. Nevertheless, I want to reduce the risk of zoonoses in another way. I will talk and discuss this topic with my friends. I am aware that minimizing zoonoses also depends on the actions of other people. I cannot influence everything. If I don't act accordingly or think that I can't do anything, that's okay. I want to give myself the freedom to approach the issue slowly and find a way for myself to live with the risk.



### **Block 3 – Info: Role Positions**

**”Covid was so terrible. I’m afraid something like that will happen again. I’m prepared to do everything in my power to make zoonoses a rare occurrence.”**





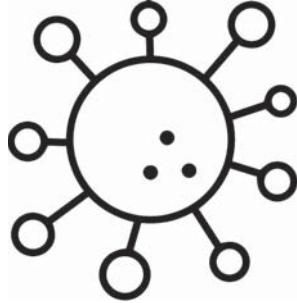
### **Block 3 – Info: Role Positions**

**“There’s no point doing anything about zoonoses. The risk of new diseases developed has always existed and always will.”**

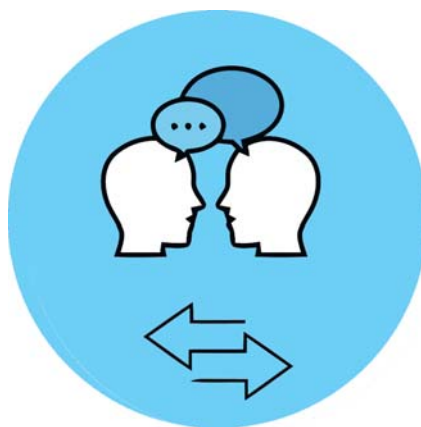


### **Block 3 – Info: Role Positions**

**”I think it’s important to do something about zoonoses, but I don’t want to change my own behaviour too much.”**



**Zoonoses**  
**Block 3 – Positioning**  
**Worksheets**





## Block 3 – WS: Role Card – Charly

When you receive this role card, you adopt Charly's position. A statement from her on the subject of zoonoses is shown below:

*"Covid was so terrible. I'm afraid something like that will happen again. I'm prepared to do everything in my power to make zoonoses a rare occurrence."*

Now try to empathise with her and think of arguments that reinforce her statement.

**What are some possible reasons why Charly made this statement?**

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**What could Charly do to reduce the risk of zoonoses?**

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**Charly is afraid that another pandemic could emerge soon, so she wants to do everything in her power to minimise the spread of zoonoses. What other motivators could there be for people to decide to do everything in their power to prevent the spread of zoonoses?**

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## Block 3 – WS: Role Card – Jens

When you receive this role card, you adopt Jens' position. A statement from him on the subject of zoonoses is shown below:

*"There's no point doing anything about zoonoses, because the risk of new diseases developing has always existed and always will."*

Now try to empathise with him and think of arguments that reinforce his statement.

**What feelings might Jens be having as he makes this statement?**

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**What could have caused Jens to have these feelings?**

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**How could Jens justify the argument? Could he point to issues that he himself cannot change?**

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## Block 3 – WS: Role Card – Menina

When you receive this role card, you adopt Menina's position. A statement from her on the subject of zoonoses is shown below:

*"I think it's important to do something about zoonoses, but I don't want to change my own behaviour too much."*

Now try to empathise with her and think of arguments that reinforce her statement.

**What feelings might have caused Menina to make this statement?**

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**What could persuade Menina to compromise?**

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**What could Menina do to combat zoonoses without changing her habits too much?**

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## Block 3 – WS: Finding Your Own Position

**How does the risk of zoonoses affect me?**

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**What can be done to reduce the risk of zoonoses?**

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**What do I want to do about the risk of zoonoses? Do I want to do anything at all about it?**

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**What aspects of my everyday life am I prepared to change for this purpose? What do I want to do without or what can't I do without?**

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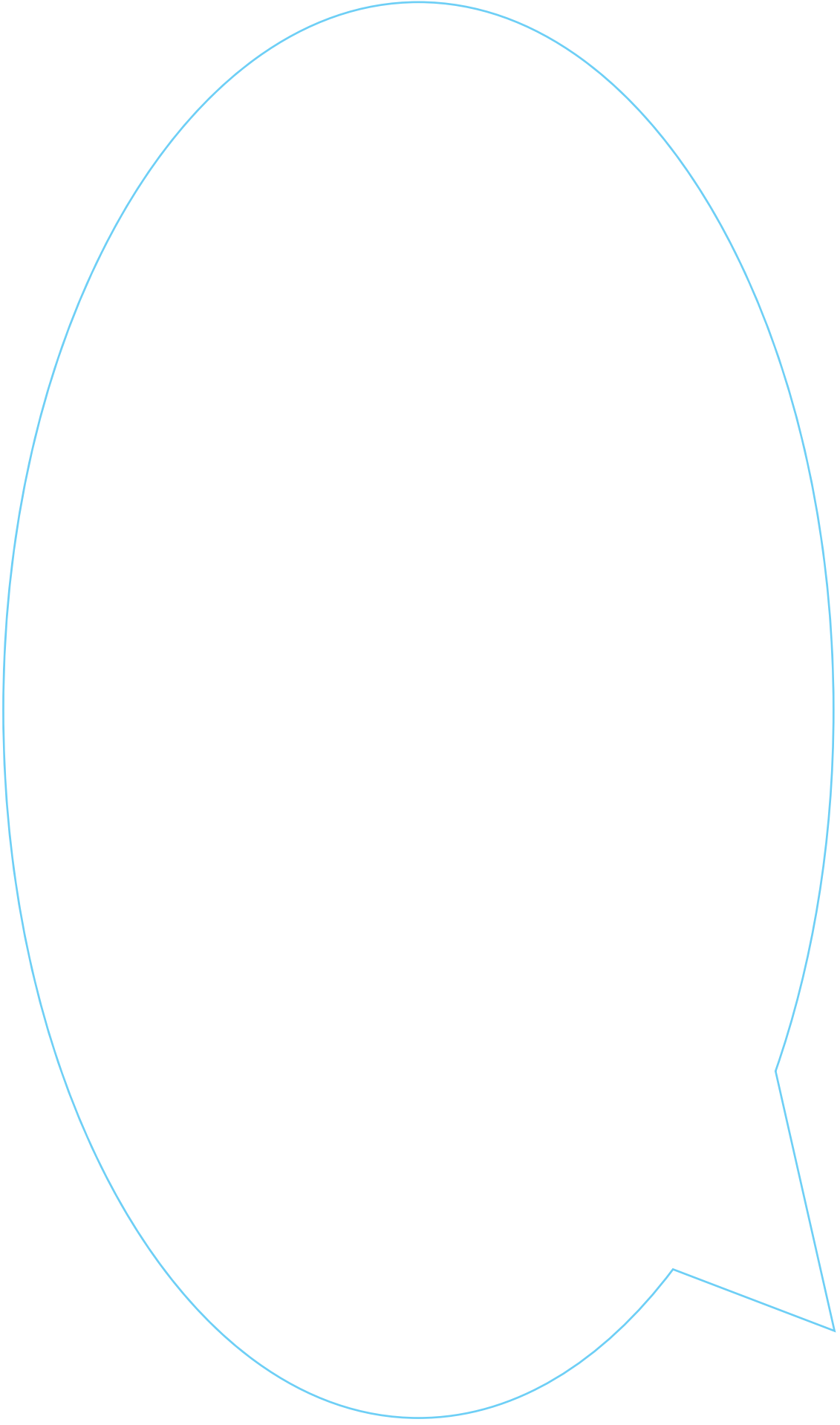
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### **Block 3 – WS: Single-sentence Positioning**



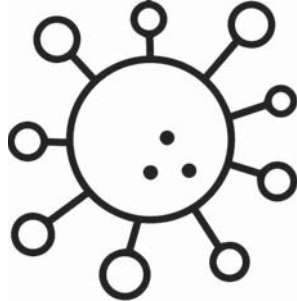




### Block 3 – WS: What Influences My Decisions?

What could be some reasons, people or attitudes that would influence your decision? Statements are provided in the table below. Make a cross on the line, depending on the extent to which the statement applies to you. You can add statements in the empty columns.

Statements with possible reasons for the decision	Completely true -----	Completely untrue
I go by what my friends decide.	_____	_____
I go by what my parents decide.	_____	_____
I decide based on my gut feeling.	_____	_____
When making my decision, I pay attention to what others think of me.	_____	_____
I pay attention to the consequences of my decisions for the future.	_____	_____
I pay attention to the consequences of my decision for others	_____	_____
When making my decision, I pay attention to my current needs.	_____	_____
	_____	_____
	_____	_____



**Zoonoses**  
**Block 4 – Courses of Action**  
**Introduction**





## Introduction to Block 4 – Courses of Action

### GOALS

The fourth block of the Zoonoses 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

#### Review

10 min

- Recapitulation of the previous units (5 min.)
- Reading out the last part of the vignette (5 min.)

#### Material

- ➔ Info: Vignette

#### Potential actions and solutions

65 min

Communicating the risk of zoonoses

- Video: Pupils create short video sequences in small groups (50 min.)

Presentation

- The created video sequences are ceremoniously presented. (15 min.)

#### Material

- ➔ Smartphones/Video cameras
- ➔ WS: Video shoot

#### Transfer

15 min

- Spontaneous positioning (15 min.)

#### Material

- ➔ WS: Reflection and transfer



## Introduction to Block 4 – Courses of Action

### ENTRY

#### Review

Group discussions are held, where the previous units are recapitulated in line with the key questions

#### Key questions

- What have the three friends in the story experienced so far?
- Where do we encounter the risk of zoonoses in everyday life?
- What can we do to reduce the risk?

### POTENTIAL ACTIONS AND SOLUTIONS

#### Zoonoses in everyday life

The vignette for block 4 is read out. Afterwards, the pupils work in pairs and consider where zoonoses are indirectly favoured in everyday school life.

➔ Info: Vignette Block 4

#### Communicating the risk of zoonoses

##### Video sequences

The pupils form small groups on four different topics. Each group comes up with lines for a video sequence based on the information acquired in the previous units, which they then practise and record. The sequence should be less than one minute long.

- ➔ WS: Video shoot
- ➔ Smartphone/video camera

##### Group topics:

*Zoonoses*

Group 1: What are zoonoses? What transmission possibilities exist?

*What favours zoonoses? How can the risk of zoonoses be minimised?*

Group 2: Factory farming

Group 3: Biodiversity loss

Group 4: Wildlife trafficking

**Optional:** How can factors favouring zoonoses be avoided at school? Another group conducts interviews with school personnel (school management, canteen staff).

#### Presentation

The created video sequences are ceremoniously presented.



## Introduction to Block 4 – Courses of Action

# TRANSFER

### Transfer

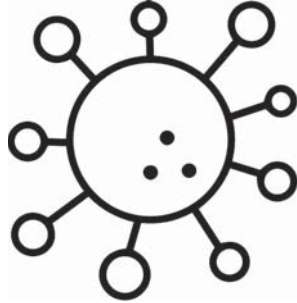
Pupils firstly reflect on the experience gained and knowledge acquired alone. They are then divided into groups of four, where they discuss their experiences.

➔ WS: Reflection and transfer

#### 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 dealing with risks?
- How do I feel at the end of the unit? Has my feeling changed over time?

Some findings from the small groups are presented to the plenum as examples.



**Zoonoses**  
**Block 4 – Courses of Action**  
**Information Sheets**





## Block 4 – Info: Vignette

### Vignette Block 1 – What are zoonoses?

#### Part 1 (Entry)

Friends Menina, Jens and Charly discuss the Covid-19 pandemic after school. Charly often uses the term "zoonoses" in her stories. Jens and Menina want to know what this means. Charly explains that zoonoses are pathogens that can be transmitted from animals to humans and vice versa. Zoonoses can develop from epidemics into pandemics. All three find the topic very interesting, but Jens has not understood the subject fully yet. "How do the transmissions actually occur?", he wonders. Charly can't remember exactly either. So the three friends watch an information video on the subject.

#### Part 2 (Research phase I)

The video aroused the interest of the three friends and they want to find out more about the topic. The information video talks about how the spread of zoonoses is favoured by factory farming, wildlife trafficking and biodiversity loss, among other things. But how exactly? To get to the bottom of the question, the three friends do some online research.

### Vignette Block 2 – Research

The three friends now have a better understanding of the areas in which zoonoses occur. But during their research, Menina wonders: "How do zoonoses actually affect our everyday lives, how do we potentially favour their spread through our behaviour and what can be done about it?" Off hand, the other two can't think of anything either. So they continue to research factory farming, wildlife trafficking and biodiversity loss and think about where they come in contact with these topics and what they can do about it. Charly, for example, finds out about the effects of factory farming on the spread of zoonoses. She suggests that they stop eating meat and, if they do eat it, make sure the animals are not kept in confined spaces. Menina, on the other hand, doesn't want to limit herself in her choice of food. However, she would like to reduce the risks in other ways by taking part in a protest against wildlife trafficking. Her idea is that, by doing this, she can inform more people about the connection between zoonoses and wildlife trafficking. Jens believes that the responsibility lies at political level. He believes that it would be more effective if laws were passed against wildlife trafficking and in favour of more species protection and nature reserves.



## Block 4 – Info: Vignette

### Vignette Block 3 – Positions

The three friends have finished their research on zoonoses for the time being. At the last meeting, they discussed how the topic occurs in their everyday lives and what could be done locally and globally to prevent zoonoses. They came to the conclusion that zoonoses cannot really be prevented. Nevertheless, there are ways to minimise the risks of them spreading. To do this, we would have to change our way of life.

But is that even necessary? This sparks a heated discussion between the friends, as they all have slightly different opinions on the subject. Jens says: *"There's no point doing anything about zoonoses. The risk of new diseases developing has always existed and always will."* Charly responds: *"But covid was so terrible. I'm afraid something like that will happen again. I'm prepared to do everything in my power to make zoonoses a rare occurrence."* Menina's view is: *"I think it's important to do something about zoonoses, but I don't want to change my own behaviour too much."*

At some point, they realise that having different opinions is not a bad thing, because everyone perceives and assesses risks differently.

The three friends decide to respect each other's opinions, and each of them explains how they want to deal with the risks.

### Vignette Block 4 – Three detectives

After the last meeting, the three friends have become clearer on their positions, values and views on the subject of zoonoses. They want to share their newly acquired knowledge with others. Menina says: *"I have a YouTube account. Would you like to upload a video about zoonoses?"*

The other two think it's a great idea. Before they get to work, they decide who is going to take on which task. Charly doesn't feel comfortable in front of the camera. So she wants to use her smartphone to do the recording. Jens and Menina want to appear in the video. They decide to make the video in an interview format. Jens moderates and asks Menina questions.

They write and rehearse their lines together. Then they look for a place to shoot the video. They decide to use Menina's courtyard, which is relatively quiet and has plenty of light. It also has a white wall, which they imagine would be a good backdrop. After a few attempts, they have a flawless recording that everyone is happy with. They watch the completed video together once again and are delighted with the result.





**Zoonoses**  
**Block 4 – Courses of Action**  
**Worksheets**





## Block 4 – WS: Video Shoot

### Video preparation:

Before you start shooting the video, think about its content and structure. The following questions may be helpful during the discovery process:

**Content**

- What do you want to report on?
- What is the problem?
- What are the risks?
- What can be done?
- 
- 
- 

**Content**

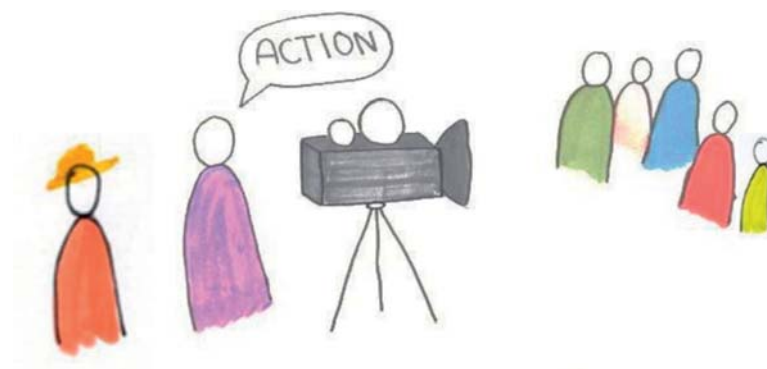
- Messages
- YouTube
- TikTok
- Interview
- Talk show
- 
- 
- 

### Allocating roles:

Think about what tasks there are and who is going to take them on.

- Filming
- Appear in the video
- Write lines
- Practise lines
- Choose location
- Possibly draw pictures or graphics
- 
- 
- 
- 

When distributing the tasks, pay attention to what you like and enjoy doing. On this basis, you can structure your video differently. For example, if no one feels comfortable in front of the camera, you can make a video with drawn symbols and graphics that are explained in spoken content. If many of you want to be seen in the video, you could film a short talk show.





## Block 4 – WS: Reflection and Transfer

Review the last units and answer the questions in the boxes.

What was new for me?

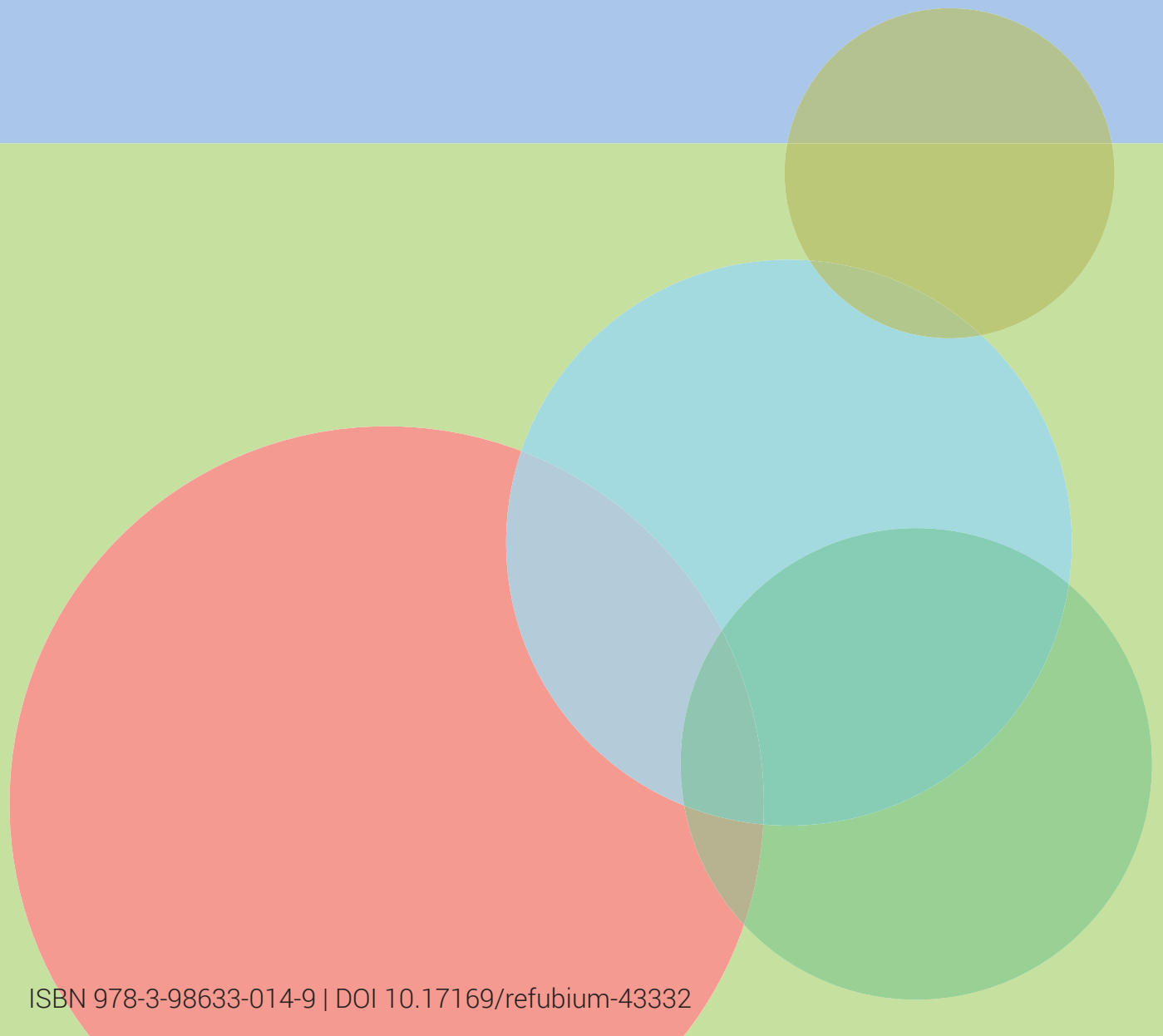
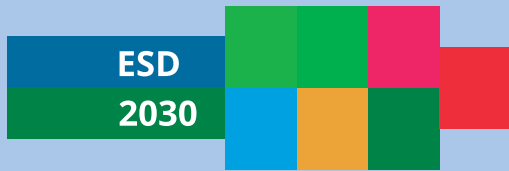
What surprised me the most?

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?



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