

Between global justice and biopiracy

Lesson phase/time	Course of lesson	Material	Social form
<p>Entry (10 min)</p> <p>(10 min)</p>	<p>The students move freely around the room at the beginning of the lesson. They look at posters with different quotations distributed on the walls. The statements come from different actors in the <i>biopiracy discourse</i>. Accordingly, they reflect different views. On the one hand, the appropriation of traditional knowledge by corporations of the Global North is problematized. On the other hand, the fundamental importance of traditional knowledge for the exploitation of biodiversity is emphasized. Other statements refer to the Nagoya Protocol. Here, it should become clear that this agreement has far-reaching consequences for science. The quotations are in English, German, and French. This already enables a multilingual introduction during the initial phase, emphasized accordingly with tailored tasks during the lesson phase.</p> <p>In this phase, the students should be enabled to the new content and the multilingual concept of the following phases. The quotations refer to central aspects of the subject matter and lead the students to a first reflection.</p> <p>The next step includes a class discussion, during which the students should describe their impressions. The students should think about the relevant problem area, if available, bring in their previous knowledge, and refer to the content of the posted quotations. The conversation can be supported by a multilingual digital mind map (M2), which is provided on the learning platform. This contains various terms which can be arranged in different ways, linked together, and annotated. Depending on the learning group, the teacher makes the decision to (1) have the conversation in German or English, (2) switch between both languages, (3) have half of the students speak both in German and English, or (4) ask strong students to take notes in the alternating language. This helps to structure the classroom discussion. The final result is secured. In the course of this conversation, the students should raise one or two guiding questions in German and English that will be followed up on. These can also be documented in the graph.</p> <p>Examples: <i>"What does 'biopiracy' mean?"</i> <i>"What does 'biopiracy' have to do with 'biodiversity'?"</i> <i>"What is the relationship between science and biopiracy?"</i> <i>"What is the Nagoya Agreement, what is its objective and what were its consequences?"</i></p>	<p>Notes with quotations on the topic of biopiracy (M1) are placed on the walls of the classroom.</p> <p>Computer with internet access, if necessary projector or smart-board as well as the graph M2 on the learning platform</p>	<p>Free movement of students</p> <p>(for the method, see Lehrer:innen-Fortbildung bw)</p> <p>Class discussion</p>



<p>Development I: First research phase (15 min)</p>	<p>The students need access to the internet. They retrieve the learning platform with material linked for beginning independent research (M3). On the one hand, a German-language article published before the Nagoya Protocol came into force is given. This article describes the basic problem of biopiracy and refers to the idea of the Nagoya Agreement, whereby critical considerations are also mentioned. On the other hand, the homepage of the <i>BfN</i> is linked. There, information about the implementation of the agreement in Germany and the EU can be found. Depending on the strength of the learning group, this homepage should be used in German or English, whereby it is advised to keep both versions handy at every time. The learning tasks further define the multilingual learning experience. In this next step, the primary aim is to provide the students with an overview on the topic. They should understand why the appropriation and patenting of genetic resources can be a problem. Furthermore, they should learn about political intervention strategies. The research can be done in individual or partner work, and ideally supports the multilingual concept of the lesson row. The corresponding workbook is provided in digital form (as pdf file) and processed on the PC.</p>	<p>Computers with internet access</p> <p>Research material M3 (linked on the learning platform)</p>	<p>Individual or partner work</p>
<p>Break (10 min)</p>			
<p>Development I (15 min)</p>	<p>The introductory research with the materials provided will continue.</p>	<p>Computers with Internet access</p> <p>Research material M3 (linked on the learning platform)</p>	<p>Individual or partner work</p>
<p>Consolidation I (15 min)</p>	<p>After the students have completed the task, the results are discussed in the plenary. The teacher makes sure that the students have worked out the main aspects of the task. As with the introductory phase, the teacher decides about the language policy.</p>		<p>Plenary</p>



<p>Development II: Option 1 (15 min)</p>	<p>After the students have acquired basic knowledge, the next step is to deepen this knowledge by dividing up the work. The class is divided into five groups, each of which receives a worksheet (in digital and analog form) (M4-M8). The worksheets contain research tasks. Four groups deal with plants that have already been the focus of biopiracy discussions. The learners work out information about the biological properties and possible uses of the plants in question bilingually (the worksheets define the tasks more clearly). In addition, they learn about the biopiracy dispute. Suitable internet sources are linked on most of the worksheets. However, the sheet about Rooibos does not contain any links. In this case, students are asked to search the necessary information on their own. This task should be assigned to strong students.</p> <p>A fifth group looks at the implications of the Nagoya Protocol for scientific research.</p> <p>Some worksheets are combined with solution sheets, the teacher can use them in order to check the results.</p> <p>The completion of the materials can be assigned to the individual groups as homework.</p>	<p>Worksheets M4.1-M4.5; Computers with internet and the pdf documents of those worksheets</p>	<p>Group work</p>
<p>End of a double lesson</p>			
<p>Consolidation II: Option 1 (15-20 min)</p>	<p>After completing their research and filling out their worksheets, the groups enter a final plenary discussion. Each group presents their findings to the whole learning group. They decide who will speak in English and German, respectively. Possibly, someone even introduces the most important terms beforehand bilingually. The presentations can be supported by a projector, so that the respective worksheet can be presented to the entire learning group. Afterwards, all worksheets are printed and distributed to the learning group.</p> <p>The digital mind map can be opened again in a final class discussion, either organized in subsequent phases in German and English, in bilingual roles or in a mode-differentiated setting (see introductory phase). This enables a link back to the introduction. The students can be guided to take up the questions of the beginning and discuss whether or to what extent they have been answered. During this step, learners should undertake a controversial final reflection. The following guiding questions can serve as orientation:</p> <ul style="list-style-type: none"> • To what extent does the Nagoya Protocol help in protecting indigenous knowledge on biodiversity? • What are the shortcomings of the Nagoya Protocol? • To what extent does the agreement pose challenges for research? • What possibilities for improvement are possible? 	<p>Computer and beamer</p>	<p>Plenary</p>
<p>Development II: Option 2 (15 min)</p>	<p>Alternatively, groups can work with the worksheets M4.a-M4.e. These guide learners to develop multilingual posters on the respective topics. They are less strictly structured than the fact sheets. Only a rough structure is given, the concrete design of the poster is left to the individual groups. This option is therefore suitable for stronger learning groups that can work independently.</p> <p>The completion of the materials can be given to the individual groups as a homework assignment.</p>	<p>Worksheets M4.a-M4.e</p>	<p>Group work</p>

End of a double lesson

Consolidation II: Option 2 (15 min)

After completing their research and designing their posters, the groups will hang them within the classroom. A gallery walk is then carried out: the students move freely around the room and look at the displayed posters. The students decide themselves whether they present in German, English, or even with a few excursions into other languages.

This is followed by a reflection within the plenary, supported by the digital mind map (M2). Now, the students can create a link back to the questions raised at the beginning and discuss whether or to what extent they could be answered. For the controversial conclusion see above.

Computer and beamer

Free movement in room
(Methodology changed
according to: Fricke 2010:
199f.)

Plenary

References for the lesson methodology

Fricke, C. (2010). Galeriegang. In: Spörhase, U. /Ruppert, W. (Hrsg.), *Biologie Methodik. Handbuch für die Sekundarstufe I und II*. Cornelsen Scriptor: Berlin, S. 199-203.

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