

Instructions for teachers when carrying out the teaching unit



Planned course of the preparatory lesson and methodical notes

The planned lesson lasts 45 minutes, but can easily be extended to 60 and up to 90 minutes, depending on students' working speed, year group, prior knowledge, completion of additional tasks and, if necessary, discussion.

A possible starter into the lesson could be: "What is a model organism?". Students can activate their preknowledge at this point and the teacher can collect it on a blackboard, smartboard or a poster. The problematization could show that the students still have dealt too little with the term and model organisms in connection with research and that the work phase begins with the group puzzle. For this purpose, depending on the class size, about four equally sized groups are formed and one worksheet per group member and assigned model organism is distributed (mouse, human, sponge, *C. elegans*). That means with a class size of 20 students, groups of five are formed. These five receive the worksheet on the model organism 'sponge' and become the expert group on this organism. There are four different worksheets, thus four different expert groups. Once the text has been read, the group formulates three core statements of the text and discusses any questions or ambiguities that have arisen. At this point, the teacher acts as a consultant and ensures a pleasant working atmosphere. Afterwards, the lesson continues with a backup phase. In this phase, one group member from each group will attend a different table and inform the new group members about the contents of his text. If there are more than four group members in a group, two or more group members can join the same expert group and summarize their findings together. At this point, the aim for each student is to note down three core statements per model organism presented in addition to the already known model organism from their own expert group in the task sheet provided for this purpose (Task 2). As a conclusion of this lesson, the teacher can deal with the question "What is a model organism?" again and the students can contribute their acquired knowledge.

The lesson focuses on increasing specialist knowledge and thus trains the professional competence of students. The group puzzle serves to distribute a lot of information among the many students. These pieces of information are then presented and exchanged in a compressed conversation. The students should read the texts carefully and look up unknown facts or words in books or the internet as well as ask other classmates or the teacher. A didactic reduction is possible at any time. For example, not all groups can process different worksheets. Two of the suggested worksheets can be processed by two groups at the same time and then be exchanged in larger groups. Problems in formulating the core statements can also be solved together in the class if smaller expert groups struggle to complete task. It is also suitable to consider interdisciplinary learning in this lesson. An extension of the lesson to 90 minutes, for example, could end with a discussion. At this point, animal experiments in research will be discussed in more detail. Philosophical and ethical approaches to the topic are added. The following possible questions can be discussed:

- Do we even need so many animal experiments in research?
- Is a human being worth more than a fly or a cancer?
- Why are animal welfare regulations becoming increasingly strict and regulated the further organisms have developed in their history (e.g. within mammals) - invertebrates vs. vertebrates?
- At what point can an animal feel pain and is this a limit above which it is possible to judge whether or not to use animals for research?

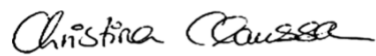
© by Claussen, Kapitza, Schulenburg & Kremer © Illustrationen by Grafik IPN

Further information on the follow-up lesson (creating stop motion films)

The planned follow-up lesson is a proposal to continue to deal with the topic and at the same time to train the visualization competence and the handling of media. For this purpose it is suitable to shoot a stop motion film. The planned lesson should take 90 minutes at this point and the suggested topics are "faecal transplantation" and "sponges as symbionts". It is suitable to divide the class into two or more groups in order to receive more films at the end of the lesson and to occupy all students. Prerequisite for the creation is a tablet or another technical device like a mobile phone with which you can take pictures and cut them together. In the link, there is also a manual for the stop motion app, which can be used by the students or the teacher. All further information can be found directly in the instructions of the task sheets or can be accessed through the process of filming. An example movie of a stop motion movie can also be found in the link.

If you have further questions about the teaching material or feedback after the lesson, I would be very happy to receive and answer them at any time. You are welcome to send me an email to the following address: chr.claussen@yahoo.de.

Good luck and enjoy the lessons.



Christina Claussen

© by Claussen, Kapitza, Schulenburg & Kremer © Illustrationen by Grafik IPN