

1. Teacher's Comments (English)

[00:00:00](#) General Comments: This school is a Catholic school for *HAVO/VWO* (Senior General Secondary Education/Pre-University Education). The filmed class is an eighth-grade *VWO* class (Pre-University Education).

We are in the middle of a lesson sequence about "transport" (heart and blood circulation). In the previous lesson, I explained the heart through a diagram. In this lesson, we discuss the structure and function of the heart. First, I am going over the homework questions using a model of the heart to demonstrate some things, followed by a brief explanation. Next, the students will work independently on the assignments for the new material. This way they can think things over together, and I can assist them if they cannot figure it out themselves. Because the independent working time is relatively long, I discuss one assignment at the end of the lesson. In the next lesson, we will have a lab and dissect chicken hearts.

It is my experience that students continue to have difficulties understanding the heart and its blood vessels all the way up to the test. That is why I spend a relatively large amount of time on this area.

[00:00:08](#) Students are normally not present in the classroom before me. Therefore, the beginning of this lesson is somewhat messy. In addition, students were also recorded the previous hour so they seem to be releasing some energy.

[00:00:19](#) Students in junior high also work with a study guide in preparation for the senior years. In principle, I do not assign homework anymore. They can find what needs to be completed before the next lesson in the study guide. The students in this class are able to handle the study guide well, so I rarely check the homework myself. This provides students with a fair amount of responsibility. The textbook is suitable for this purpose also because students can comprehend the textbook material independently. I notice that students enjoy working ahead when there is time left. The advantages for me as a teacher are as follows:

1. I have to prepare the entire chapter all at once, which provides me with a good overview of the material and corresponding lab work.
2. I do not have to assign homework and check whether they have done it. That is their own responsibility.
3. If I am absent, the classroom monitor lets the students work through the study guide independently.

[00:00:33](#) Willem didn't bring his book. Everybody is supposed to bring all their things; if they don't, they should let me know. I don't usually record this (too much administrative hassle) except for when it gets out of hand. If a student frequently forgets to bring his materials I will penalize him, but warn him in advance.

[00:00:46](#) I always start the lesson by explaining the goal of today's lesson and asking if anybody has questions about the previous material or the homework.

[00:01:17](#) The cutting book is sort of a workbook with pictures and diagrams. Students fill in the blanks and occasionally color the pictures. In this case, they have to use color because it

is important to know where the oxygen-poor blood and oxygen-rich blood are located. I let them choose whether to cut the pictures out and paste them in their books (that's how the cutting-book was designed) or whether to leave all the pictures as they are in the cutting book.

- [00:02:06](#) I try to teach them how to systematically distinguish the left side from the right side of the heart in several different pictures and models, and in the near future with a real heart. Then we will use this distinction to name all the blood vessels related to the heart.
- [00:02:28](#) Because the students have difficulty naming the parts (which was made apparent yesterday when they first started these assignments in class), I choose to discuss these assignments publicly.
- [00:06:05](#) Unfortunately, we do not have enough access to overhead projectors in this school. The use of a transparency would be ideal to show color and arrows. I will overcome this obstacle by checking students' notebooks when they are working. Plus, it is their responsibility to ask me if they are unsure if they did it right.
- [00:06:23](#) I reiterate several key points from the previous lesson when discussing Assignment 7. I also use the model to demonstrate some of the parts, which is difficult because the model, although a nice representation of the heart, is a bit small.
- [00:10:18](#) Students completed Assignment 8 about the pulmonary and systemic blood circulation by using the book on their own. Since there were no teacher explanations, they made more mistakes.
- [00:14:09](#) Here, I give a brief explanation about the function of the heart. Yesterday we drew the heart schematically; now the pictures in the book suffice. I provide only a little extra explanation and try to involve the students by asking them questions.
- [00:17:05](#) I usually don't accept an answer like, "I don't know." By probing the student with more questions, I show him that he does know the answer if he thinks about it some more.
- [00:19:02](#) I always finish the theory part by asking if there are any questions. After that I give them a moment to get their books out and turn to the right assignment page to start. I walk around the classroom as they work on their assignments. This makes it easier for them to ask me questions. In addition, I also check their notebooks to see what they have written. If there are any real mistakes, I question the students about them.
- [00:19:14](#) Students have a tendency to just fill in the missing information because it is quicker, instead of copying the entire passage. However, they lose the meaningful connections. That's why I explicitly tell them to copy the entire diagram.
- [00:19:36](#) Students are allowed to discuss assignments with their neighbors as long as the class remains relatively quiet.
- [00:21:37](#) The assignment from the cutting book is the assignment that was discussed before, where they had to color and indicate the direction of blood flow with arrows. Students in this class are good in taking responsibility. If they didn't understand something from the public explanation, they will ask about it later.
- [00:25:02](#) Often, students only read a portion of the instructions. In this assignment, the words to be filled in the sentences are already given. There are always a few students, like this girl, who do not see the words and try to come up with their own words instead.
- [00:36:18](#) After the test we will do a project across disciplines that includes physical education. During physical education students will work on the project, and during biology they will research the theory, physiology, and metabolism. Here, students are asking about the content of that project.
- [00:36:25](#) Unfortunately, grades remain the most important issue for students. A project without a

grade is doomed to fail; therefore, we do give students a grade. However, the most important part of the project is their cooperation with one another to get good results. This process is difficult to grade.

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Students have been working for at least 15 minutes now. Sometimes I let them continue to the end of the lesson, but I see that many students have progressed nicely so I decide to discuss an assignment that fits the content of the current lesson. I do this also because the noise level and off-topic discussions are increasing even though there are still 15 minutes left in the lesson. If I don't take any measures, there is a chance that the remaining time is wasted with chatter and messing around.

[00:38:28](#)

I am referring to the experiment where they do 20 repetitions of knee-bends and then measure their heart rates.

[00:40:22](#)

I usually end a few minutes before the bell, which gives me time to chat with a few students. In addition, I have a chance to get my things ready for the next hour. I used to write the homework on the board, but like I said before, this group is able to work well with the study guide and I only inform them what we will do tomorrow. Many students work ahead with the study guide so they do not have a lot of homework.