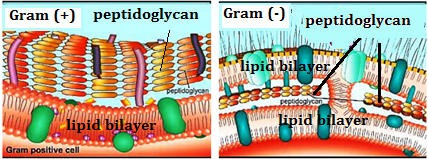
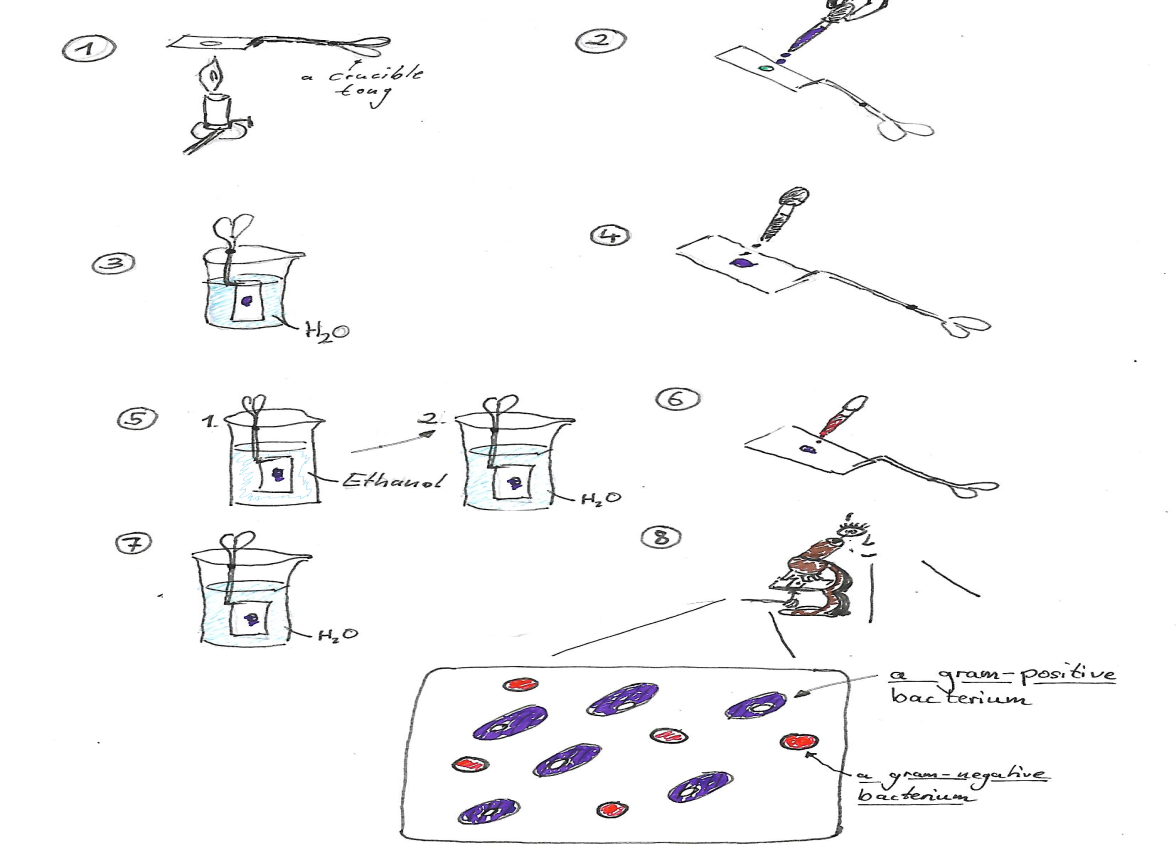
**Gram staining**

**-To find the right treatment against infections-**

*Gram staining* is a method used in microbiology to differentiate between two major groups of bacteria: the *gram-positive and gram-negative*. They differ in their membrane structure (see figure 1.). Whereas the peptidoglycan layer is thick and lies outside of the lipid bilayer membrane *in gram- positive bacteria*, it is thin and embedded into the membrane in *gram-negative bacteria*. Thus, a dye, which stains the peptidoglycan, is most of all retained in gram-positive bacteria.



**Figure 1. The different membrane structures of gram-postive ( left) and gram-negative bacteria( right).**



**Figure 2. The single steps in the process of *gram staining*.**

**Task: Write a lab report about *gram staining* including the sections:**

**1. Introduction:** You should explain the principle of this method and why two dyes are used.

**2. Question and hypothesis:** *Gram staining* has been an important method in medicine until nowadays to characterize pathogenic bacteria in infections and to choose the right therapy. State the scientific question which the doctor would ask and propose a hypothesis to this question ( you could form an if-clause).

**2. Materials:** You list the materials and chemicals required for the gram staining.

**3. Procedure:** You describe the single steps **in passive voice** , shown in figure 2., beginning with the smear from an infected wound of a patient. You don't need to write the exact volumes and concentrations of the chemicals.

**4. Result/Conclusion:** You interpret the results from figure 2. , magnified through the microscope, and state what infection occurred.

**5. Discussion:** Here, you come up with possible errors that could have occurred and you propose further application or discuss the social impacts which this scientific method has had. You could also explain another way to differentiate between gram-positive and gram-negative bacteria (e.g. in genetics).

**Content :** \_\_\_\_\_\_\_\_\_ /40 P. **Language:** \_\_\_\_\_\_\_\_\_\_\_\_ /60 P.

**Total points: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**GRADE: \_\_\_\_\_\_\_\_\_\_\_**

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| Punkte | 100-95 | 95-90 | 90-85 | 85-80 | 80-75 | 75-70 | 70-65 | 65-60 | 60-55 | 55-50 | 50-45 | 45-36 | 36-27 | 27-18 | 18-9 | 9-0 |

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