

Subject	The teacher is able to:
1. Who qualifies for a genetic test	<p>1.1 Indicate that genetic tests can be carried out in persons with a disease history or a disease running in the family (genetic test), as well as in healthy persons (genetic screening).</p> <p>1.2 Indicate that genetic tests can take place in various life stages (preconception, pre-implantation, prenatal, and after birth/adults) and that, in the case of complex disorders, the timing of the test might be critical for the meaning of an outcome.</p>
2. What is being tested	<p>2.1 Indicate that genetic tests include all tests that can indicate genetic characteristics, thus the analysis of DNA, RNA, polypeptides, metabolites, phenotype, and family history.</p> <p>2.2 Indicate that disorders can be monogenic, polygenic or multifactorial and name the implications that this might have for a genetic test and a potential treatment for the disorder.</p> <p>2.3 Indicate that a genetic screening (depending on the type of screening) in addition to the risks for certain disorders can inform persons about carrier status (and thus risks for newborns), the risk for relatives, and (positive or negative) reactions on medication.</p>
3. The utility of a genetic test	<p>3.1 Indicate that the usefulness of a test is determined by the technical quality, the clinical relevance, and the validity (sensitivity/false positive and specificity/false negative).</p>
4. The outcome of a genetic test	<p>4.1 Indicate that the outcome of a genetic test for complex disorders will never be definitive because:</p> <ul style="list-style-type: none"> - New research might reveal new insights about risk increasing or decreasing alleles; - Not all alleles are taken into consideration during the test (they may vary in different ethnical groups or might be protected by patent rights); - Non-genetic factors and family history might influence the outcome. <p>4.2 Indicate that the outcome of a genetic test has positive effects such as early identification as well as potential negative effects such as false concerns or problems for access to certain professions or insurances, and that this might raise ethical, legal, and social questions.</p>
5. Inheritance	<p>5.1 Indicate how Mendelian heredity works and explain that heredity may differ caused by the complexity of interactions of the genome (incomplete penetrance, pleiotropy, influence of high/low risk genes, and interactions between genes and between genes and non genetic factors).</p> <p>5.2 Name the differences between congenital, heritable, and genetic, give accompanying examples and indicate the implications for inheritance.</p>